

**Centuri**

# MODEL ROCKETRY



**25c  
CATALOG  
71 D**

CENTURI ENGINEERING COMPANY P.O. BOX 1988 PHOENIX, ARIZONA



**Centuri**

*As Shown on Back Cover*

## **SPACE SHUTTLE**

The Centuri SPACE SHUTTLE is based on the current proposals now under study by NASA. Flight performance is astounding. The SPACE SHUTTLE streaks skyward to apogee and separates into three parts. Both the carrier ship and the shuttle craft glide slowly back to earth. The "power pod" containing the expended engine returns via streamer. The kit is complete with colorful decals.

**ONLY \$350**

### **SPECIFICATIONS**

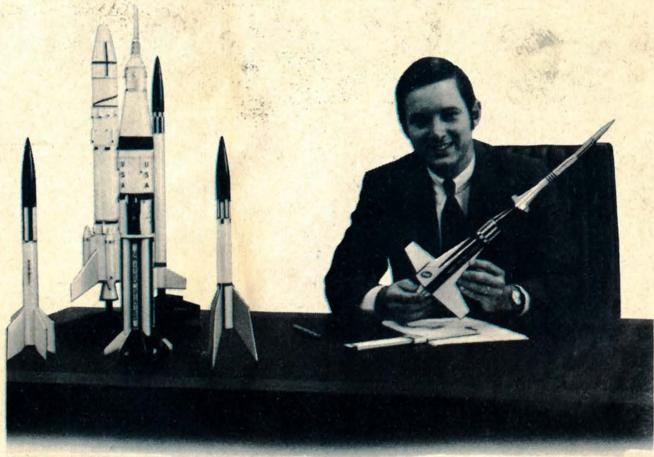
*Carrier Ship      Shuttle Craft*

Length	15"	8.9"
Net Wt.	1.93 oz	0.67 oz
Body Dia.	1.64"	1.34"
Wing Span	10"	4.7"

Cat. No. KC-6 Ship. Wt. 15 oz.

*Engines Not Inc.*

**RECOMMENDED ENGINE C6-3 ONLY**



*Greetings  
from all of us at Centuri!*

*Today, tens of thousands of young boys (and yes, girls too) have become enthusiastic followers of this marvelous scientific action hobby, Model Rocketry. Even schools now have included Model Rocketry in their classrooms and laboratories recognizing its value for teaching science, physics and mathematics in a visual and exciting way.*

*Whether for fun, or to increase your understanding of Science, we invite you to join in the Centuri Program of Model Rocketry. To start with, you'll experience the thrill of pressing the firing button and watching your own rocket rise off the launching pad, then streak a thousand feet or more into the sky --- finally returning safely back to Earth on its colorful parachute. Later, you'll be able to launch multi-stage rockets, clustered engine "birds" and even graduate to the larger Mini-Max and Enerjet rockets.*

*Centuri model rockets are really very economical and durable. You can fly them again and again. Through precise engineering and careful attention to detail, Centuri can promise you the finest quality and best performing products available. We guarantee your satisfaction. To get you started off on the right foot, we give you a free *Rocketry Design Manual* with your first order. And, we'll keep you informed of new rocket plans and products with your free *AMERICAN ROCKETEER Newsletter*.*

*We are looking forward to supplying your model rocketry needs, and would like very much to receive your questions, comments, plans or suggestions for new products or service. Look over all the pages of this catalog carefully, and I'm sure you'll understand why *CENTURI* is truly the Quality Leader in High Flying Model Rockets.*

*Your friend,*

*Leroy E. Piester, President*

# WHAT IS A MODEL ROCKET AND HOW DOES IT WORK?

## 5 APOGEE

Rocket reaches peak altitude and starts to turn over and dive.

## 4 COASTING PERIOD

Momentum of rocket carries it still upward without thrust. Rocket slows down as delay charge burns.

## 3 BURN OUT

Propellant in engine burns out. Thrusting stops and delay starts.

## 2 LIFT OFF

Engine thrust pushes rocket forward. Stabilizer fins guide rocket keeping it pointed upward.

## 1 IGNITION

Engine is ignited electrically.

## 6 PARACHUTE EJECTION

Ejection charge ignites, pushing out parachute. Colorful chute opens and slows rocket's descent.



## 7 SOFT LANDING

Slowly descending rocket lands safely, undamaged and ready for another thrilling flight.

## TYPICAL CUT-AWAY VIEW

### NOSE CONE

At the frontal end, the nose cone serves to guide the airflow around the rocket. Many different shapes are used and usually made of balsa or plastic.

### BODY TUBE

The body tube, made of special paper tubing, is the basic component of a model rocket. All other components are either contained inside or attached to the body tube.

### WADDING

A flameproof cotton material that protects the parachute from the heat of the ejection charge. It also acts as a piston when pushing out the parachute and is expended with each flight.

### THRUST RING

Positioned and glued into the body tube, the thrust ring prevents the engine from moving forward and also transmits the engine "thrust" to the airframe. Usually made from heavy wall paper tubing or balsa.

### STABILIZER FINS

Usually made from balsa, the fins are attached to the aft end and serve to guide the rocket in a straight flight path after it leaves the launcher.

### PARACHUTE

Ejected from the rocket at peak altitude, it slows the returning rocket to a safe speed, preventing damage to the rocket when it lands. Plastic, silk, and nylon are common parachute materials. Other types of recovery devices such as streamers are also used.

### LAUNCH LUG

Slender paper or plastic tube fastened to the side of the rocket body to hold the rocket on the launch rod, and guide the rocket along the rod until sufficient air speed is reached for the fins to guide the rocket.

### ROCKET ENGINE

Completely self contained non-metallic power package, the model rocket engine "pushes" rocket upward when electrically ignited. A "built-in" time delay allows the rocket to coast up to its maximum altitude before an ejection charge pushes the nose cone and parachute out of the body tube.

All Centuri engines are  
NAR SAFETY  
CERTIFIED



# WHAT IT TAKES TO BUILD AND FLY A MODEL ROCKET!



Centuri model rockets come in kit form. A few basic tools and materials are required to assemble them. A basic launch system, too, is required to fly the rocket.

## MODELING TOOLS

A modeling knife with a sharp blade is a must. See page 74 for a complete list of inexpensive, quality modeling tools.



## FINISHING MATERIALS

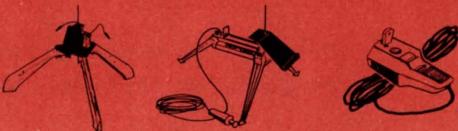
Centuri Super Bond Glue is highly recommended because of its high strength factor and fast drying time. Balsa fillercoat and sandpaper (see page 68) are used to finish the balsa parts. Paint is needed, in the colors of your choice, to finish the model.



## LAUNCH SYSTEM

A launcher is needed to start the rocket on its flight (see pages 50-51). A firing control device is required for electrical ignition of the rocket engine.

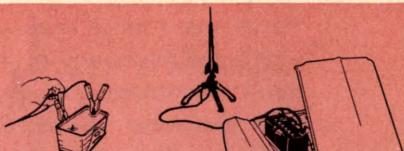
(see pages 52-53)



## POWER SUPPLY

A power supply of at least 6 volts is required for electrical ignition\*. A 6 volt lantern battery or if an automobile is at the launch site, the battery can be used.

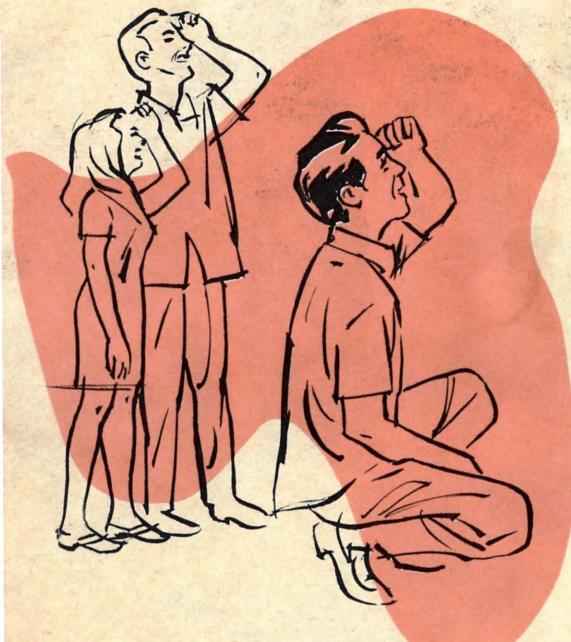
\*Because of its unique design, the Centuri SERVO-LAUNCH (page 50) does not require as much power as conventional launch systems.



## ROCKET ENGINES

Centuri manufactures 26 different model rocket engines (in the standard series) to suit any model and launch situation. These one-time-use engines are quite inexpensive yet are produced to exacting standards. Igniters and instructions are included with each box of engines. In addition, 22 engines are offered to the advanced rocketeer in ENERJET and MINI-MAX series.





## Model Rocket Safety



In the past ten years, nearly 20 million model rocket launchings have taken place — establishing one of the best safety records of any youth activity. Why such a clean record? Four good reasons are shown here.

*First*, engines are completely self contained in non metallic casings — no mixing of chemicals. These engines are manufactured to extremely high reliability levels.

*Second*, the rocket is constructed of strong, lightweight materials such as balsa, paper and plastic. The rockets contain recovery devices which bring them slowly and safely back to earth.

*Third*, ignition is accomplished electrically using special igniters and safety firing switches. No fuses or matches are used.

*Fourth*, and most important, is the attitude of model rocketeers. They look upon this hobby as being exciting, entertaining and educational. They don't think of model rockets as toys. Hundreds of thousands of rocketeers have promoted the safety of the hobby by following the Safety Code printed here. Read this code, follow it, and enjoy the wonderful hobby of Model Rocketry.



Centuri

## Solid Propellant

# MODEL ROCKET SAFETY CODE

**1. CONSTRUCTION** — My model rockets will be made of lightweight materials such as paper, wood, plastic, and rubber without any metal as structural parts.

**2. ENGINES** — I will use only pre-loaded factory made model rocket engines in the manner recommended by the manufacturer. I will not change in any way nor attempt to reload these engines.

**3. RECOVERY** — I will always use a recovery system in my model rockets that will return them safely to the ground so that they may be flown again.

**4. WEIGHT LIMITS** — My model rocket will weigh no more than 453 grams (16 ozs.) at liftoff, and the engines will contain no more than 113 grams (4 ozs.) of propellant.

**5. STABILITY** — I will check the stability of my model rockets before their first flight, except when launching models of already proven stability.

**6. LAUNCHING SYSTEM** — The system I use to launch my model rockets must be remotely controlled and electrically operated, and will contain a switch that will return to "off" when released. I will remain at least 10 feet from any rocket that is being launched.

**7. LAUNCH SAFETY** — I will not let anyone approach a model rocket on a launcher until I have made sure that either the safety interlock key has been removed or the battery has been disconnected from my launcher.

**8. FLYING CONDITIONS** — I will not launch my model rocket in high winds, near buildings, power lines, tall trees, low flying aircraft or under any conditions which might be dangerous to people or property.

**9. LAUNCH AREA** — My model rockets will always be launched from a cleared area, free of any easy to burn materials, and I will only use non-flammable recovery wadding in my rockets.

**10. JET DEFLECTOR** — My launcher will have a jet deflector device to prevent the engine exhaust from hitting the ground directly.

**11. LAUNCH ROD** — To prevent accidental eye injury I will always place the launcher so the end of the rod is above eye level or cap the end of the rod with my hand when approaching it. I will never place my head or body over the launching rod. When my launcher is not in use I will always store it so that the launch rod is not in an upright position.

**12. POWER LINES** — I will never attempt to recover my rocket from a power line or other dangerous places.

**13. LAUNCH TARGETS & ANGLE** — I will not launch rockets so their flight path will carry them against targets on the ground, and will never use an explosive warhead nor a payload that is intended to be flammable. My launching device will always be pointed within 30 degrees of vertical.

**14. PRE-LAUNCH TEST** — When conducting research activities with unproven designs or methods, I will, when possible, determine their reliability through pre-launch tests. I will conduct launchings of unproven designs in complete isolation from persons not participating in the actual launching.



# YOUR program in MODEL ROCKETRY

**LEARN ROCKETRY FUNDAMENTALS THROUGH A  
PLANNED PROGRAM OF ACTIVITIES**

Besides being a wonderful hobby, is it true that model rocketry is really educational? Yes, a well-planned model rocket program has tremendous educational value — value far beyond the feeling of accomplishment in seeing your very own model rocket rise off the launch pad, streak skyward, and return safely by parachute.

Just the simple act of building, launching, tracking and recovering model rockets exposes you to many scientific subjects such as aerodynamics, math, astronautics, physics, biology and electronics. Model rockets perform just like the big research rockets and missiles, so most of the scientific principles of rocket flight can be directly applied to these miniature operating models.

To help you in planning such a program for yourself, we have prepared the following schedule of study, building, and flight activities which will help you prepare for advanced science studies.

**Centuri®**

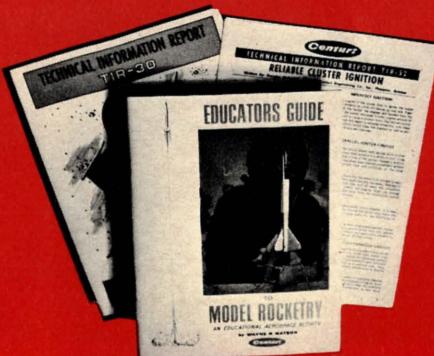
## EDUCATIONAL PROGRAM SERVICES

### FOR THE TEACHER

Centuri's Educational Programs and Services Division has prepared a series of coordinated guidebooks and visual aid materials to assist the educator in preparing a "motivating" model rocketry program in school.

Educators are invited to write for a free Educational Overview Brochure on their school's letterhead. Send requests to:

Centuri Engineering Company, Inc.  
Director of Educational Programs  
P. O. Box 1988  
Phoenix, Arizona 85001



## BUILDING AND LAUNCHING MODEL ROCKETS IS BOTH FUN AND EDUCATIONAL



### 1. BASIC SINGLE-STAGE KITS

Build and launch several single-stage kits to learn basic rocket construction and recovery devices, such as:

*'LIL' HERCULES* ----- Drag  
*MICRON* ----- Streamer  
*JAVELIN* or *ASTRO-1* Parachute  
*The POINT* ----- Rigid Chute

### 2. 'ROCKETEER'S GUIDEBOOK'

This valuable book is an excellent beginner introduction to model rocketry. It explains the "what", "why", and "how" of the hobby; including building, launching, tracking and recovery of model rockets.

### 3 PAYLOAD LAUNCHING

Acceleration Effects Launch a small biological specimen, such as an insect, in a payload model such as Recruiter, Pay-loader, or Snipe Hunter. Observe effects.

### 4. ROCKET STABILITY

Read Centuri's Technical Report #TIR-30 to learn "What makes a rocket fly straight", "What is center-of-pressure", and "How to test for Stability".

### 5. MULTI-STAGING

Coupling & Separation Build and launch one of the multi-stage kits to learn techniques of stage coupling, separation, and upper-stage ignition, such as Marauder, Arcon-Hi, Firefly, Centaur, 'T' Bird and Micro-Probe.

Study rocket engine thrust-time curves and data charts. Understand rocket terminology, such as: specific impulse, total impulse, average thrust, drag, center-of-pressure, and acceleration. Demonstrate this knowledge and ability by working up a project for an extra credit report or a Science Fair.

Don't stop here though. Keep up with your studies at school. The world and space around it are yours to inherit. Do your part to pioneer the frontiers of Space. Who knows? Maybe you'll find yourself a career as an astronaut or missile scientist.

### 6. ROCKET ALTITUDE

Read Technical Report #TIR-100 to learn how to figure the altitude of your models before you even fly them. Learn how to select the proper delay time for different models.

### 7. TECHNIQUES OF CLUSTER

Read Technical Report #TIR-52 to learn the latest techniques for "Reliable Cluster Ignition". Then build and fly the Little Joe, Saturn V or Saturn 1-B. Report included with these kits.

### 8. BOOST GLIDERS

Build and fly the SWIFT or SST model to learn the principles of Boost Gliders.

### 9. CUSTOM ROCKET DESIGNING

Read Centuri's "Designer's Handbook". Learn how to design and build your own rockets from Custom Parts, then design and build your own creation. Technical Report #TIR-33 will show you how to locate a rocket's center-of-pressure.

### 10. LARGE-SCALE ROCKETS

After you have secured an understanding of rocket fundamentals, go onto the larger model rockets powered by MINI-MAX engines. Build and launch one of these "big birds" with a biological or instrumented payload.

**LET'S GO! HERE'S A TERRIFIC OUTFIT**

*Centuri*

**COMPLETE**

**NO! NOTHING ELSE TO BUY!**

Centuri's ASTRO-1 kit is easy to build, looks terrific, and flies to very high altitudes. Use the new Servo Launch to fly all your single engine rockets. This new launcher folds up for easier carrying. Special batteries included. An \$11.50 value!

**10-PIECE OUTFIT INCLUDES:**

**BIG ASTRO-1 MODEL ROCKET KIT**  
**COMPLETE SERVO-LAUNCH LAUNCHING SYSTEM**  
**SPECIAL IGNITION BATTERIES**  
**THREE POWERFUL ROCKET ENGINES**  
**"ROCKETEER'S GUIDEBOOK"**  
**"SURE-SHOT" IGNITERS**  
**PARACHUTE PROTECTIVE WADDING**



**SERVO LAUNCH:** A completely new system for model rocket ignition. Includes launcher, remote firing switch and internal battery supply.



**36-PAGE ROCKETEER'S GUIDEBOOK** to get you started right.



**STURDY FIELDBOX** store and carry all your supplies easily.



TO GET YOU STARTED IN MODEL ROCKETRY

9

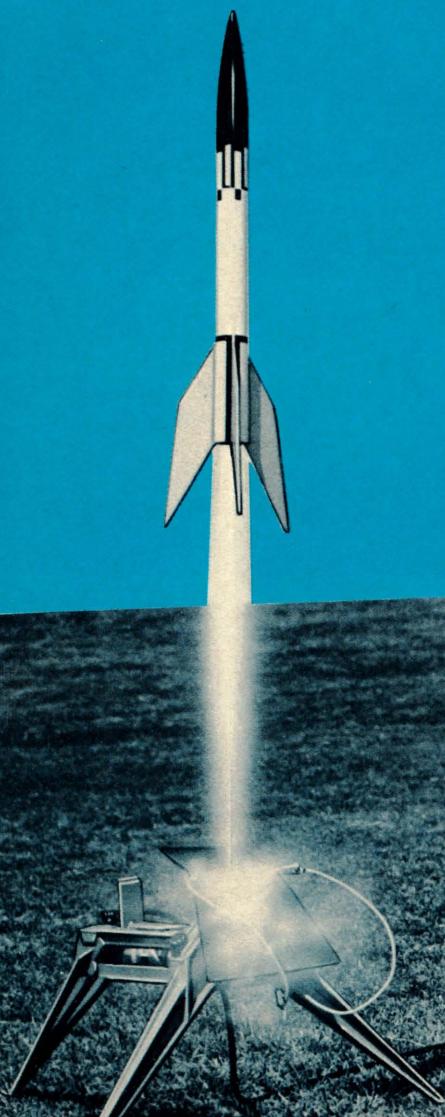
# ROCKET OUTFIT

for Only

**\$995**



Catalog No. SK-100  
Shipping Wt. 3 lbs.



EVERYTHING YOU NEED TO FLY!...



# ROCKETEER'S Outfit

Complete with "Servo Launch" and Ignition System

A terrific outfit for that special rocketeer. Perfect for father and son teams, neighborhood friends or brothers to share. Each gets a rocket and both share the launching equipment. Outfit includes two popular Centuri rocket kits and complete launch system — including batteries. Also includes six powerful rocket engines and a package of 12 of Centuri's famous Sure-Shot igniters. If bought separately, the components of this kit would cost \$14.85. An added bonus — The "ROCKETEER'S OUTFIT" comes packed in a sturdy attractive field box carrying case.

**\$1295**

*A Real Bargain at...*

Catalog No. SK-101      Shipping Wt. 3 lbs.

## 16-PIECE OUTFIT INCLUDES:

*PAYOUTLER II CARRIER ROCKET  
JAVELIN SOUNDING ROCKET  
SERVO LAUNCH LAUNCHING &  
IGNITION SYSTEM (BATTERIES INCLUDED)  
6 POWERFUL ROCKET ENGINES  
SURE-SHOT IGNITERS  
MODEL ROCKETEER'S GUIDEBOOK  
PACKAGE OF CHUTE PROTECTIVE WADDING  
FIELD BOX CARRYING CASE*



**Centuri**

# ARSENAL Outfit

Everything for many thrilling flights!

Here's a great outfit for that aspiring rocketeer. Also perfect for family or club launchings — where each member can have his own rocket and share the launching and ignition equipment. All great performing rockets, this outfit even includes the ARCON-HI Two-Stager model. See pages 19, 22, 36, 51 and 52 for individual descriptions. Simply connect the Lectra-Line 2 directly to your 6 or 12 volt car battery or dry cell and you're ready to launch. A \$21.85 value.

**21-Piece Outfit, Only...**

**\$1995**

Catalog No. SK-102   Shipping Wt. 4 lbs.

#### 21-PIECE OUTFIT INCLUDES:

ARCON-HI TWO STAGE ROCKET KIT  
JAVELIN SINGLE-STAGE ROCKET KIT  
PAYLOADER 2 CARRIER ROCKET KIT  
LECTRA-LINE 2 FIRING PANEL  
ROCKET LAUNCHER #LIA-77  
12 POWERFUL ROCKET ENGINES  
MODEL ROCKETEER'S GUIDEBOOK  
SURE-SHOT IGNITERS  
FIELD BOX CARRYING CASE  
PARACHUTE WADDING



Centuri

## ASTRO 1

IDEAL BEGINNER'S KIT

EASY & FAST TO ASSEMBLE  
 NEW PLASTIC PAYLOAD CONE  
 HIGH ALTITUDE FLIGHTS  
 LAUNCH IT MANY TIMES  
 BIG 16" PARACHUTE

Easy and fast to build, ASTRO-1 is an excellent starting kit for the beginning rocketeer. Its high performance design assures you excellent, high altitude flights every time. Upon ignition, ASTRO-1 zooms hundreds of feet into the sky and returns safely by a large red and white parachute. Kit comes complete with parachute, colorful decals, "Quick-Change" engine lock, and step-by-step illustrated instructions.

## SPECIFICATIONS

Length ----- 16"  
 Body Dia. ----- 1.04"  
 Net Wt. ----- 1.1 oz.

RECOMMENDED  
ENGINES

½A6-2	B6-4
A8-3	B14-5
B4-4	C6-5

\$200

Catalog No. KB-17  
 Shipping Wt. 13 oz.  
*Engines Not Inc.*



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# QUASAR

## CLASSIC SPACESHIP DESIGN

**NEW! FIRST  
TIME SHOWN!**

**BAFFLE EJECTION  
SYSTEM\***

**MOLDED DETAIL PARTS  
INCLUDED**

**COMPLETE SET OF COLORFUL  
DECALS**



**SPECIFICATIONS**

Length ..... 17.5"  
Body Dia. ..... 1.64"  
Net Wt. ..... 3.0 oz.

**RECOMMENDED  
ENGINES**

B6-4  
B14-5  
C6-5

**\$4.00**

Catalog No. KC-7  
Shipping Wt. 16 oz.  
Engines Not Inc.

\*This system eliminates need for chute wadding.

*Pat. Pending*

**Centuri**

The amazing  
**POINT**

**BUILD IT! WATCH IT FLY  
and WONDER WHY!**

**UNUSUAL RIGID CHUTE  
RECOVERY**

**WEIRD SMOKE TRAIL**



This brand new easy-to-assemble "finless" rocket really flies. Learn about rocket stability by building and flying the POINT. Kit comes with colorful pre-painted body skin and astronaut cockpit. Unusual body shape acts as its own rigid parachute for sure, safe recovery every flight. Use B4-2 engine only.

Catalog No. KC-13  
Shipping Wt. 12 oz.  
Engines Not Inc

**\$1 50**

**SPECIFICATIONS**

Length ----- 8.1"  
Base Dia. ----- 3.9"  
Net Wt. ----- 0.55 oz.

**RECOMMENDED  
ENGINE**

B4-2 (ONLY)

**RECRUITER**

**SPACE PROBE  
SPORTS ROCKET**

**LARGE PAYLOAD CAPSULE  
BIG 2-COLOR PARACHUTE**

Impressive display model!!!! Excellent flight bird!!! The RECRUITER's futuristic design includes a Gemini-styled cone and six fins. Top section serves as payload compartment. This bird streaks hundreds of feet skyward and returns safely by colorful parachute to be flown again and again.

Catalog No. KC-30  
Shipping Wt. 14 oz.  
Engines Not Inc **\$2 50**

**SPECIFICATIONS**

Length ----- 19"  
Body Dia. ----- 1.34"  
Net Wt. ----- 1.2 oz.

**RECOMMENDED  
ENGINES**

A8-3  
B6-4  
C6-5



# TWISTER

**Learn about SPIN STABILIZATION**

**PLASTIC PAYLOAD CAPACITY NOSE CONE**

**HIGH ALTITUDE FLIGHTS**

**SPECIAL DECALS**

The TWISTER is a high altitude sports model that actually spins as it streaks aloft. Specially designed canted fins provide the unique spin action. Paint it in vari-colored paint patterns and watch it change colors as it flies. Kit is complete with parachute, instructions and decals.

Catalog No. KA-2  
Shipping Wt. 8 oz.  
Engines Not Inc.

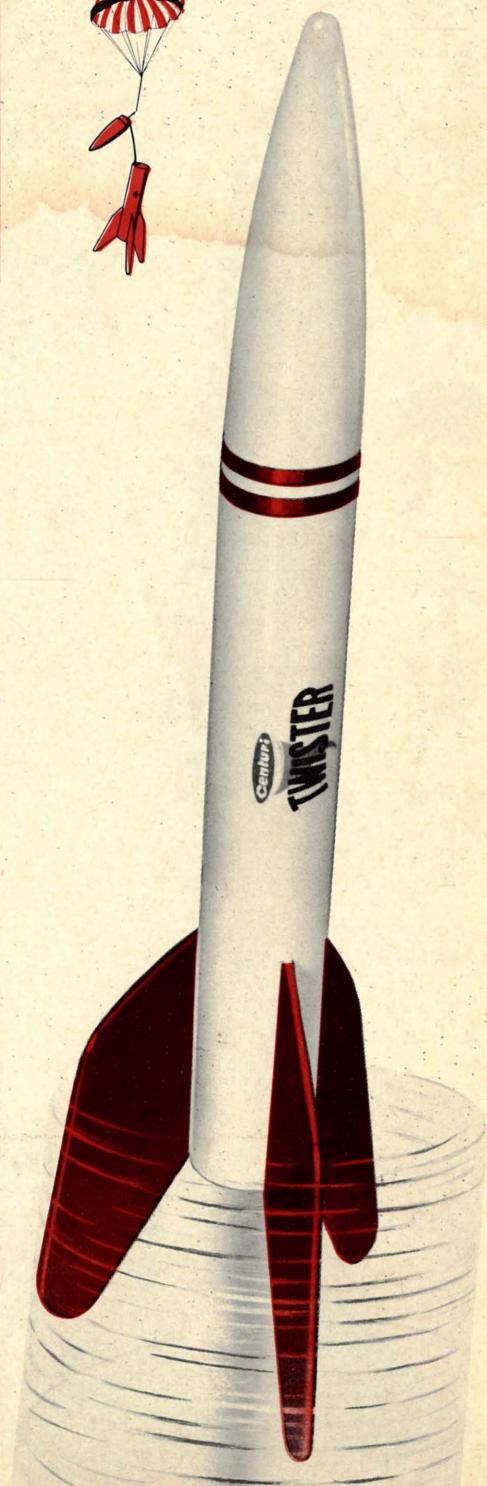
**\$1 50**

**SPECIFICATIONS**

Length ----- 11"  
Body Dia. ----- 0.908  
Net Wt. ----- 0.9 oz.

**RECOMMENDED ENGINES**

½A6-2 B6-6  
A5-4 B14-6  
B4-6 C6-7



**Centuri****proudly introduces...****SINGLE ENGINE RELIABILITY****NEW BAFFLE EJECTION SYSTEM****REALISTIC SLOW LIFT-OFFS**

# **CENTURION**

***Ideal Demonstration Bird!***

Big and beautiful — is Centuri's new kit the CENTURION. Slow, realistic lift-offs with spectacular flights are topped by a slow descent to Earth on a large parachute. This kit features our new Baffle Ejection System which protects the parachute from the heat of the engine ejection gases, eliminating the need for chute wadding. An engine lock makes engine change a snap. Kit is complete with illustrated assembly instructions and special CENTURION decal.

**SPECIFICATIONS**

Length ----- 24"  
 Body Dia. --- 1.64"  
 Net Wt. --- 2.3 oz.

**RECOMMENDED  
ENGINES**

A5-2  
 B4-2  
 C6-5

Catalog No. KC-2  
 Shipping Wt. 16 oz.  
 Engines Not Inc.

**\$300**

## 2 amazing new rockets!

BIG-IMPRESSIVE  
MANY THRILLING FLIGHTS  
FORMED PLASTIC WRAPPERS

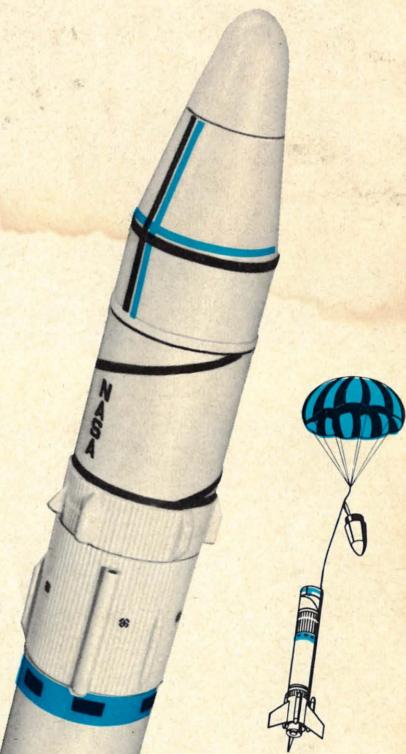
# ORION

*The Interplanetary Explorer!*

The ORION is one of the largest single engine sports rockets available. Loaded with detail from end to end, the ORION is one of the most impressive models you could ever build. Featuring single engine power, Baffle Ejection System, engine lock, and parachute recovery, the ORION is as great on the launch pad as it is on the display stand. Kit includes complete detailing parts, simulated exhaust nozzle and illustrated instructions.

Catalog No. KC-8  
Shipping Wt. 16 oz.  
Engines Not Inc.

**\$4.95**



#### SPECIFICATIONS

Length ----- 22.5"  
Body Dia. --- 2.04"  
Net Wt. ----- 4.5 oz.

#### RECOMMENDED ENGINES

B4-2  
C6-3



## CHUTER 2 SOUNDING ROCKET

EASY-TO-BUILD    PLASTIC PAYLOAD CAPSULE  
DUAL PARACHUTE RECOVERY

A real high performance bird, this sleek model is an excellent starter kit. The CHUTER-2 features a 3" long capsule to carry your payloads to lofty altitudes. The CHUTER-2 includes two colorful parachutes — one to bring back the payload capsule and one to return the main body—safely.

**\$2.25**

SPECIFICATIONS	RECOMMENDED ENGINES
Length ----- 18.5"	½A6-2
Body Dia. ----- 0.908"	A5-4
Net Wt. ----- 1.0 oz.	B6-6

Catalog No. KC-16  
Shipping Wt. 10 oz.  
Engines Not Inc.

## HIGH ALTITUDE SNIPE HUNTER CARRIER ROCKET

LAUNCH LIVE INSECTS    SEE-THRU PLASTIC CAPSULE

A fantastic performer!! Chosen for its high performance design, the SNIPE HUNTER was flown in the First International Model Rocket Championships held in Czechoslovakia, May 1966. Launch live insect specimens inside plastic see-thru capsule to observe effects of high acceleration rocket flights. Comes complete with decals and 12" parachute.

**\$2.00**

SPECIFICATIONS	RECOMMENDED ENGINES
Length ----- 12.5"	½A6-2
Body Dia. ----- 0.76"	A8-5
Capsule Dia. ----- 0.908"	B6-6
Net Wt. ----- 0.85 oz.	

Catalog No. KB-13  
Shipping Wt. 10 oz.  
Engines Not Inc.

## PAYOUTER II CARRIER ROCKET

LAUNCH INSECT PAYLOADS TO 2000 FEET\*    CLEAR PAYLOAD COMPARTMENT  
GREAT BEGINNER KIT! TERRIFIC FOR DISPLAYS AND DEMONSTRATIONS.

Clear plastic capsule permits launching of insects or other small animal life to study acceleration effects. Launch crickets, beetles, grasshoppers, and ants to high altitudes. Both capsule and rocket return safely by colorful parachute. Easy-to-build kit — includes decals and complete instructions.

**\$2.50**

SPECIFICATIONS	RECOMMENDED ENGINES
Length ----- 18.5"	A8-3
Body Dia. --- 1.04"	B6-4
Net Wt. ----- 1.2 oz.	B14-5 *C6-5

Catalog No. KC-20  
Shipping Wt. 14 oz.  
Engines Not Inc.

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# 2 Chuter

Centuri

# SNIPE HUNTER

Centuri

# Payloader III



Lil'

# HERCULES

PEE WEE ROCKET



75¢

Catalog No. KA-1  
 Shipping Wt. 5 oz.  
*Engines Not Inc.*

## FEATHERWEIGHT RECOVERY

Perfect for the beginner in model rocketry. Designed for use only with short "S" engines, the LIL HERCULES reaches high altitudes and returns safely for many more exciting flights. The lightweight design of this rocket permits it to float gently back to earth without the requirement for a parachute or streamer.

EASY-TO-BUILD

FUN-TO-FLY

### SPECIFICATIONS

Length ----- 5.6"  
 Body Dia. --- 0.76"  
 Net Wt. ----- 0.2 oz.

### RECOMMENDED ENGINES

½A6-2S  
 ½A6-4S

# MICRON

SINGLE STAGE ROCKET

\$125

Catalog No. KA-5  
 Shipping Wt. 6 oz.  
*Engines Not Inc.*

NOW WITH NEW  
 STREAMER RECOVERY

GREAT BEGINNER KIT  
 EASY-TO-BUILD  
 FLIGHTS TO 2,000 FT.

Featuring printed balsa fins and plastic nose cone, the MICRON can be assembled in minutes. Will fly up to 2,000' and return with a colorful streamer for a soft-safe landing. Fly it again and again. Complete kit includes decals.

### SPECIFICATIONS

Length ----- 8.5"  
 Body Dia. ----- 0.76"  
 Net Wt. ----- 0.4 oz.

### RECOMMENDED ENGINES

½A6-4	B6-6
A8-5	B14-6
B4-6	C6-7



**Centuri**

*Award winner*

# STARFIRE

## SPORT FLYING ROCKET

An Award Winner at the FIRST INTERNATIONAL MODEL ROCKET CHAMPIONSHIP MEET held in Dubnica, Czechoslovakia, May, 1966. Designed and flown by Centuri's Leroy Piester in the Parachute Duration event using a 20" parachute.

*Comes with*

**2**

**BIG PARACHUTES**

**BOTH 12" & 20" PARACHUTES INCLUDED**

**PLASTIC PAYLOAD CONE**

**EASY-TO-BUILD**

**IDEAL BEGINNER KIT**

Beautiful in appearance and high in performance, the STARFIRE is coveted by beginner and advanced rocketeer alike. A 12" parachute is included for normal recovery and a 20" bonus chute is enclosed for contest duration events. Chutes are easily interchanged. Laminar flow boat tail improves flight efficiency.

**\$200**

Catalog No. KC-12  
Shipping Wt. 10 oz.  
Engines Not Inc.

**EASY-TO-BUILD • FLIGHTS TO 1800 FEET • IDEAL BEGINNER KIT**



**SPECIFICATIONS**

Length ----- 16"  
Body Dia. ----- 0.908"  
Net Wt. ----- 1 oz.

**RECOMMENDED ENGINES**

½A6-2	B6-6
A5-4	B14-6
B4-6	C6-7

Centuri

# LASER-X

## SPACE PROBE

A great new kit by Centuri! One of our most popular "birds", the LASER-X looks and performs fantastically. Its futuristic design and large size gives you exciting realistic looking lift-offs. Recovery is by large colorful parachute. Pre-cut balsa fins make this one a joy to assemble.

**FUTURISTIC DESIGN—LARGE SIZE**

**PRE-CUT BALSA FINS**

**EXCITING LIFT OFFS**

**\$325**

Catalog No. KC-50  
Shipping Wt. 14 oz  
Engines Not Inc.



**BIG 3-COLOR DECAL**



**SPECIFICATIONS**

Length ----- 21.5"  
Body Dia. ----- 1.34"  
Net Wt. ----- 1.75 oz.

**RECOMMENDED ENGINES**

A8-3  
B6-4  
B14-5  
C6-5

Centuri

# “Javelin”

## SOUNDING ROCKET

### POPULAR BEGINNER'S ROCKET KIT

EASY TO “PREP”  
PARACHUTE RECOVERY  
GREAT FOR BEGINNERS  
PLASTIC NOSE CONE



**\$1 50**

Catalog No. KC-31  
Shipping Wt. 10 oz.  
Engines Not Inc.

This easy-to-build high performance rocket is just the “bird” for the beginning model rocketeer. Upon lift-off, the Javelin streaks into the sky hundreds of feet and returns safely by a colorful parachute to be flown many more times.

#### SPECIFICATIONS

Length ----- 12.5"  
Body Dia. ----- 0.76"  
Net Wt. ----- 0.6 oz.

#### RECOMMENDED ENGINES

½A6-4      B6-6  
A8-5      B14-6  
B4-6      C6-7



# TOMAHAWK

SOUNDING ROCKET

1/10TH SCALE MODEL

INCLUDES DATA SHEET

LARGE PAYLOAD COMPARTMENT

One-tenth scale operating model of the sounding rocket built by Astro-Met Division of Thiokol Chemical Corporation.

TOMAHAWK is an excellent beginner scale model. Use bonus payload capsule to carry insects or measuring devices to high altitudes and return them safely by parachute. "Scale Substantiation Data" sheet showing specifications plus photo of real TOMAHAWK included.

**\$225**

Catalog No. KC-40  
Shipping Wt. 10 oz.  
Engines Not Inc.



**SPECIFICATIONS**

Length ---- 20"  
Body Dia. -- 0.908"  
Net Wt. ---- 1.15 oz.

**RECOMMENDED ENGINES**

½A6-2	B14-6
A5-4	C6-7
B6-6	

# EGG Crate

## DESIGNED FOR COMPETITION EGG LOFTING\*

Designed for competition in egg lofting events, the EGG CRATE is a heavy duty payload rocket with lots of power. Kit contains all parts to build either a two or three engine cluster mount. The "slip in" engine mount is complete with quick change engine locks. Easy to construct, the EGG CRATE is a big, impressive model.

The main body and payload capsule are recovered independently on two large parachutes. Kit is complete with all parts, instructions and special decal.

**\$4.50**

Catalog No. KC-11  
Shipping Wt. 18 oz.  
Engines Not Inc.

**\*EGG LOFTING:** This is a standard NAR contest event. The object is to loft a large hen's egg to the greatest altitude and recover it uncracked or unbroken. The egg is cushioned in foam rubber within the payload capsule and is recovered by a large parachute. The egg is usually sealed in a plastic bag to reduce the mess if you have a hard recovery.

### SPECIFICATIONS

Length	20.3"
Body Dia.	1.64"
Payload Capsule Dia.	2.04"
Net Wt.	3.25 oz.

### RECOMMENDED ENGINES

- 2 or 3 B4-2's
- 2 or 3 B6-4's
- 2 or 3 C6-5's

# MERCURY

# REDSTONE

## SUPER SCALE KIT

A true 1/36th scale version of the pioneer MERCURY-REDSTONE. This is an accurately detailed scale model such as you would expect from Centuri. Measuring 2" in diameter, the REDSTONE stands 29" tall — a big, impressive model. Relatively simple in construction, this kit makes no sacrifice to detail and scale fidelity. The MERCURY capsule and tower are hi-impact molded styrene parts. Fins are pre-printed on quality balsa stock. Large decals include roll patterns and all markings found on the real rocket.

Flight performance is both realistic and exciting. Recovery is "dual parachute" type; the main body descends on a large 24" chute while the capsule returns on its own 12" chute. Featuring a Baffle Ejection System and "quick change" engine lock, the REDSTONE is a snap to "prep" for firing. Complete kit includes informative historical brochure.

**ACCURATELY DETAILED KIT**  
**MOLDED PLASTIC CAPSULE & TOWER**  
**SINGLE ENGINE RELIABILITY**  
**SIMPLIFIED CONSTRUCTION KIT**

Catalog No. KS-1  
 Shipping Wt. 15 oz.  
*Engines Not Inc.*

**\$4.95**

### SPECIFICATIONS

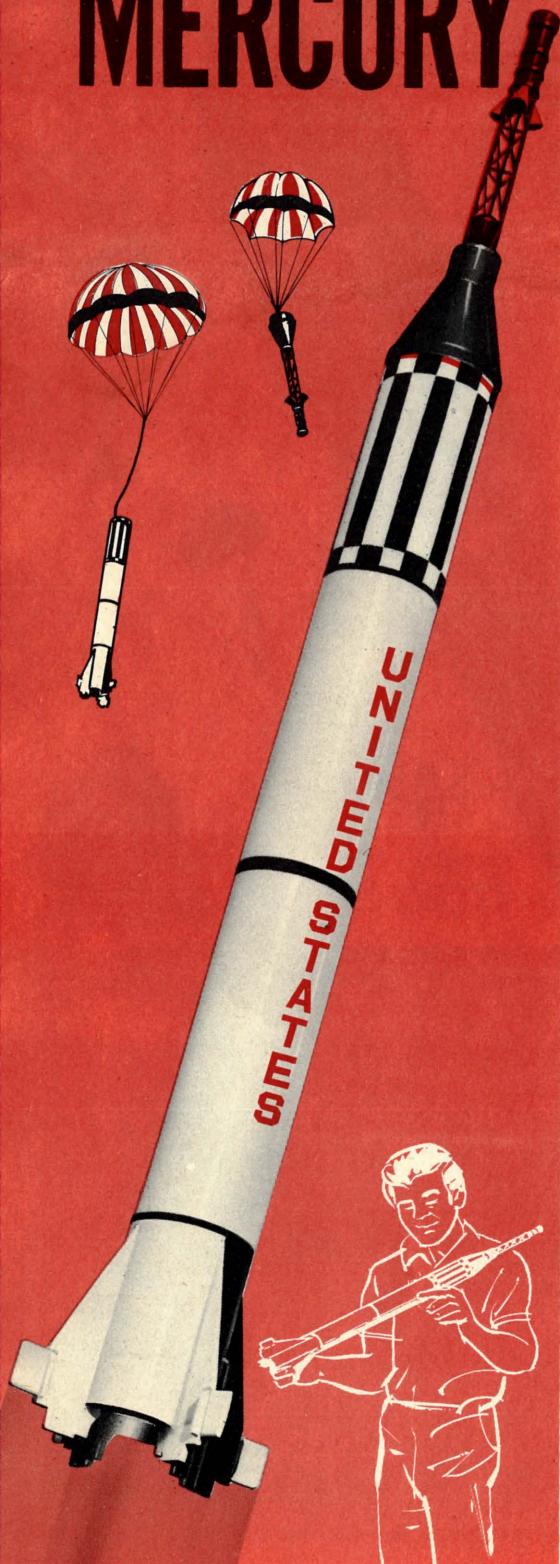
Length ----- 29"  
 Body Dia. --- 2.04"  
 Net Wt. ----- 3.7 oz.

### RECOMMENDED ENGINES

B4-2  
 C6-3

**AVAILABLE**

**OCTOBER - NOVEMBER '70**



# \*AEROBEE 350

## TRUE SCALE DESIGN PAYLOAD TYPE NOSE CONE

A real high flying scale model of the sounding rocket used to research the atmosphere. The AEROBEE 350 streaks hundreds of feet skyward and returns gently on a two color parachute.

### SPECIFICATIONS

Length ----- 16.5"

Body Dia. ----- 1.04"

Net Wt. ----- 1.1 oz.

**\$200**

### RECOMMENDED ENGINES

A8-3      B14-5  
B6-4      C6-5

Catalog No. KC-5  
Shipping Wt. 10 oz.  
Engines Not Inc.

*\*Registered Trademark of Aerojet-General Corp.,  
El Monte, California*

# \*\*IRIS

## ACCURATE SCALE MODEL SCALE DATA SHEET INCLUDED

The Centuri IRIS is a true scale operating miniature of the big Sounding Rocket produced by Atlantic Research Corp. for NASA and the Naval Research Laboratories. The real IRIS can lift a 100 pound payload to 200 miles altitude.

### SPECIFICATIONS

Length ----- 16.8"

Body Dia. ----- 0.908"

Net Wt. ----- 0.90 oz.

**\$200**

### RECOMMENDED ENGINES

½A6-2      B6-6  
A5-4      C6-7

Catalog No. KC-14  
Shipping Wt. 10 oz.  
Engines Not Inc.

*\*\*Registered Trademark of Atlantic Research Corp.,  
Alexandria, Virginia*



Centuri

Enjoy the thrill of

# HONEST JOHN

*Perfect for Contests!*

**REPLICA OF  
U.S. ARMY SURFACE  
TO SURFACE ROCKET**

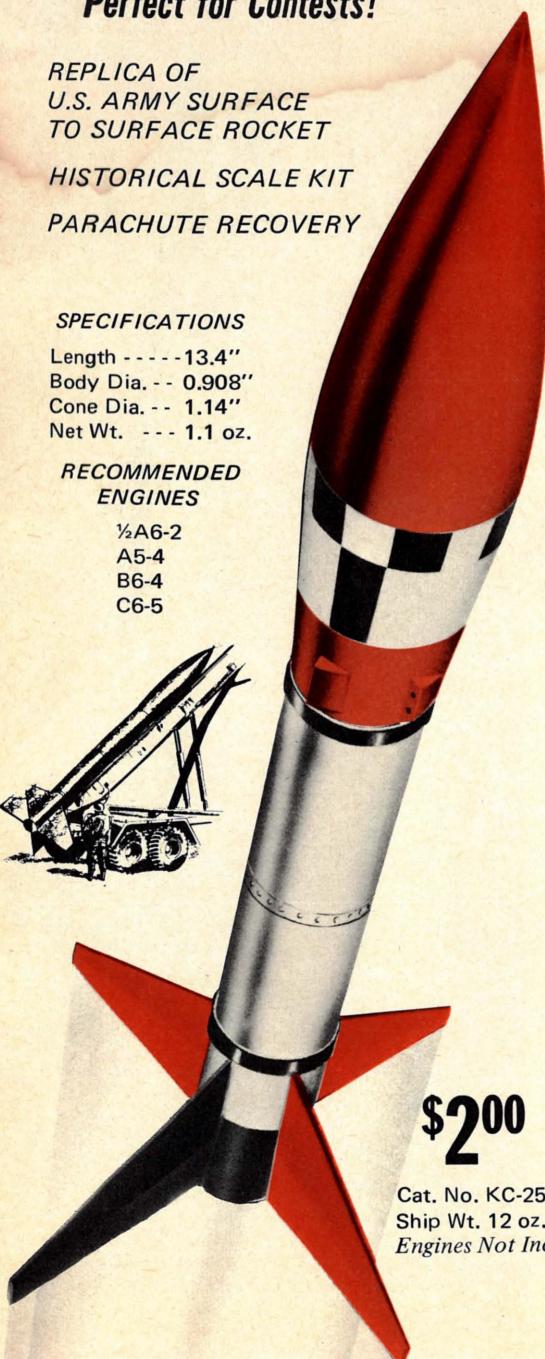
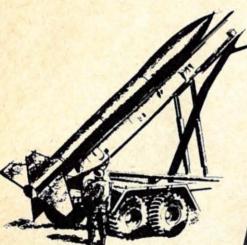
**HISTORICAL SCALE KIT  
PARACHUTE RECOVERY**

**SPECIFICATIONS**

Length ----- 13.4"  
Body Dia. --- 0.908"  
Cone Dia. --- 1.14"  
Net Wt. ---- 1.1 oz.

**RECOMMENDED  
ENGINES**

½A6-2  
A5-4  
B6-4  
C6-5



**\$2.00**

Cat. No. KC-25  
Ship Wt. 12 oz.  
Engines Not Inc.

True-scale operating model of the U. S. Army's famous surface-to-surface ballistic missile. This 1/25th detailed scale model of HONEST JOHN lifts off the launch pad for a thrilling flight skyward, and returns gently to Earth by a brightly colored chute. Comes in easy-to-build kit form.

**\$3.50**

Catalog No. KS-19  
Shipping Wt. 12 oz.  
Engines Not Inc.



## MX 774

*Spectacular in Flight!*

Inspired by the V-2, the MX-774 was developed by Convair Aviation under contract to the Air Force. It includes many "firsts" now considered standard in liquid fuel rocket design. Centuri's accurate scale model of this famous rocket includes all parts, step-by-step instructions and a two-page scale data sheet.

*Historical Scale Model  
of America's First  
Supersonic Rocket*

**1/37TH SCALE MODEL  
PLASTIC PAYLOAD CONE**

**SPECIFICATIONS**

Length ----- 11"  
Body Dia. -- 0.908"  
Net Wt. ----- 1.1 oz.

**RECOMMENDED  
ENGINES**

1/2A6-2	B6-6
A5-4	B14-6
B4-6	C6-7



**1/40TH SCALE MODEL  
W.W. II LONG RANGE ROCKET  
ACCURATE SCALE DETAIL  
PARACHUTE RECOVERY**

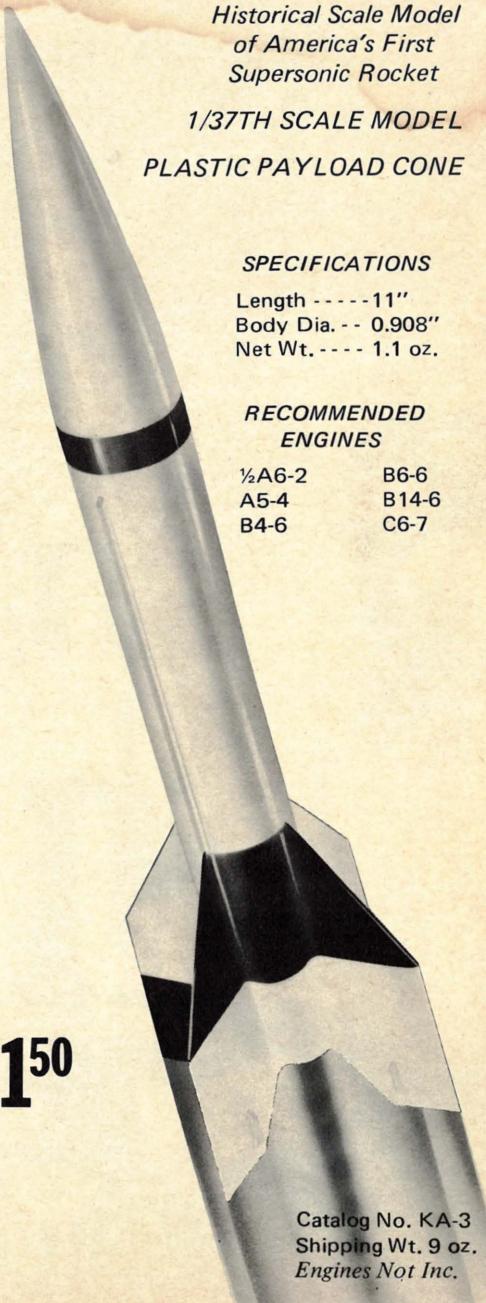
A truly accurate scale model of the rocket that has been called the "father" of today's liquid fuel rockets. Large precisely machined balsa nose cone and boat tail insure scale fidelity to the sweeping curves of the real V-2. Complete with 16" parachute and illustrated assembly and painting plans.

**SPECIFICATIONS**

Length ----- 14.2"  
Body Dia. -- 1.64"  
Net Wt. ----- 2.1 oz.

**RECOMMENDED ENGINES**

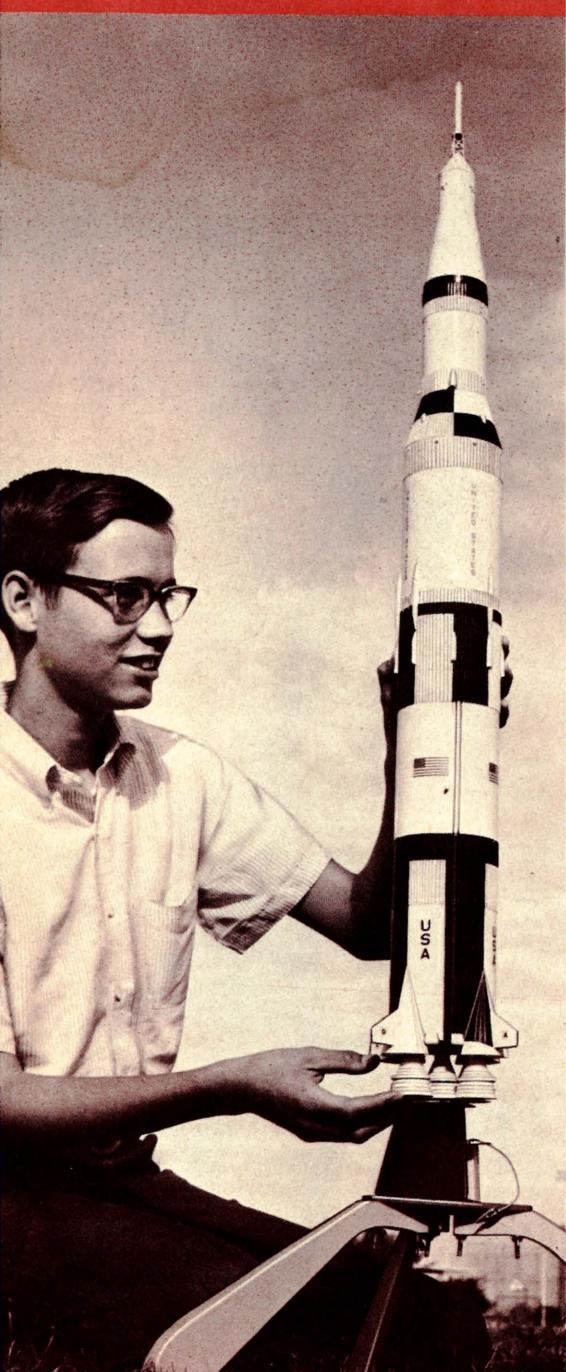
A8-3	B14-5
B6-4	C6-5



Catalog No. KA-3  
Shipping Wt. 9 oz.  
Engines Not Inc.



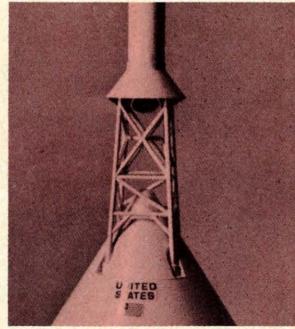
# SATURN 5



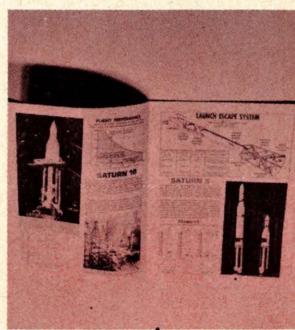
**INCLUDES :**

- 8 PAGE HISTORICAL BROCHURE**
- EXACT 1/100TH SCALE REPLICA**
- FULL DEPTH CORR. WRAPPERS**
- CLEAR MOLDED FINS**
- FULL COLOR DECALS**
- 3-ENGINE POWER**

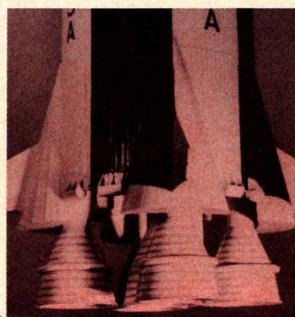
*Easily assembled injection molded APOLLO tower & capsule. Beautifully detailed & exact scale. A perfect "topper" for a great kit.*



*Historical brochure. Provides brief history of the APOLLO program along with many "builder's shots" of the massive SATURN boosters.*



*Removable display nozzle unit gives the Centuri SATURN a complete look. Plastic nozzles are exact copies of the real F-1 engine bells.*



## SUPER-SCALE MODEL

# with Apollo Space Capsule



Scaled from official NASA blueprints, this kit is an exact scale replica of the rocket that landed men on the moon. Not a "shake-together" kit, the SATURN V is intended for rocketeers who have built a few beginner type kits. Due to the excellently engineered and precisely fabricated components, the SATURN V is certainly not beyond the scope of the average rocketeer who wishes to experience the pride that comes from creating his own model rocket "masterpiece". Construction is thoroughly explained in a well illustrated 12 page instruction booklet. The kit features "full depth" corrugated wrappers with intricate external details molded right in. Vacuum-form tail fairings and hollow core fins simplify construction and provide greater flight strength. Fully detailed engine nozzles lend a "complete look" for display purposes. Molded plastic APOLLO capsule and full color authentic decals complete the kit.

Performing as beautifully as it looks, the SATURN V lifts slowly and realistically from the launch pad. Rising rapidly under power and coasting to apogee, the SATURN deploys its colorful parachutes. The spacecraft descends slowly on its own 20" chute while the main body swings lazily earthward on a pair of large 24" chutes. A Tech Report on "Clustering Techniques" is included as background info for launching this 3 engine show stopper.

# \$16.95

Catalog No. KS-12  
Shipping Wt. 3 lbs.  
Engines Not Inc.

#### SPECIFICATIONS

Length ----- 43.6"  
Body Dia. ----- 3.96"  
Net Wt. ----- 9.2 oz.

#### RECOMMENDED ENGINES

3 C6-3's

*Launcher not included in kit.*

*Note: The SATURN V should be launched from a heavy duty LIA-100 launcher (see page 87).*

OVER  
**3½**  
FEET  
TALL

# Enjoy the thrill of building and

32



1/100 Scale

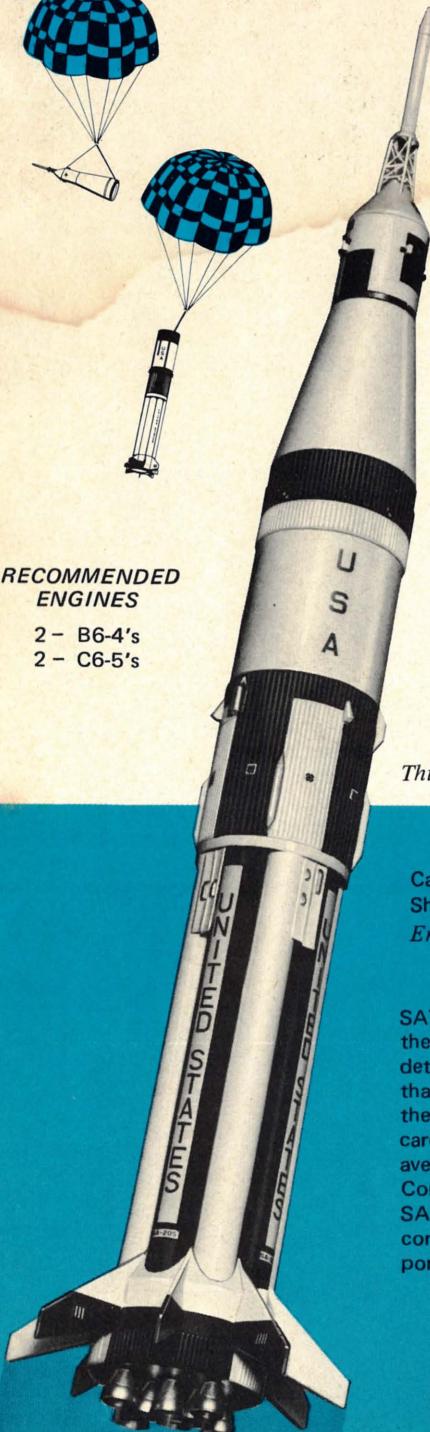
## SATURN 1B

REMOVABLE DISPLAY ENGINE NOZZLES  
FULL DEPTH CORRUGATED WRAPPERS  
TOP QUALITY COMPONENTS  
AUTHENTIC FULL COLOR DECALS  
DUAL PARACHUTE RECOVERY

*Note: The SATURN 1-B should be launched from a heavy duty LIA-100 launcher (see page 87).*

### RECOMMENDED ENGINES

2 - B6-4's  
2 - C6-5's



### SPECIFICATIONS

Length - - - 26.8"  
Body Dia. - 2.62"  
Net Wt. - - 4.4 oz.

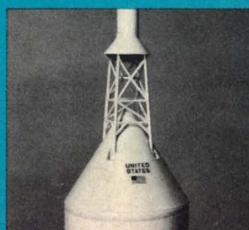
*This model can attain altitudes of 650'.*

Catalog No. KS-10  
Shipping Wt. 2 lbs.  
Engines Not Inc.

**\$9.95**



SATURN 1-B is an exact 1/100th scale model of #SA-205, the first rocket to launch a manned APOLLO mission. Every detail on the model is correct — down to the exact markings that appeared on the real ship. Like its SATURN V sister, the Centuri SATURN 1-B is not a beginner's kit. Extreme care, however, was taken in designing this model so the average builder could turn out a museum quality model. Construction materials are similar to those used in the SATURN V (previous page). Very complete step-by-step construction & painting instructions, Cluster Technique Report and Historical Brochure complete the kit.



# Flying Big! Super-Scale Models!

## APOLLO LITTLE JOE 2

**BIG – TWO FEET TALL**

**3 ENGINE POWER**

**DUAL PARACHUTE RECOVERY**

**MOLDED PLASTIC APOLLO CAPSULE**

**PRE-PRINTED ROLL PATTERNS**

### *RECOMMENDED ENGINES*

3 - B4-2's 3 - B6-4's 3 - C6-5's

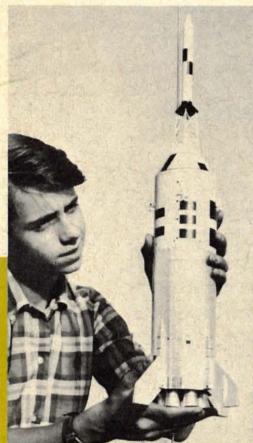
### *SPECIFICATIONS*

Length ----- 23.4"  
Body Dia. --- 3.4"  
Net Wt. ----- 5.5 oz.

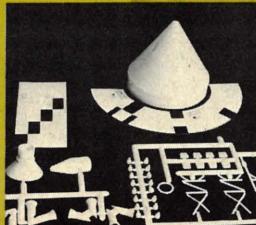
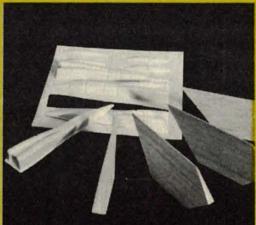
*Includes sure-shots® and  
12 page historical brochure.*

**\$14.50**

Catalog No. KS-8  
Shipping Wt. 2 lbs.  
Engines Not Inc.



LITTLE JOE is an exactly detailed replica of one of the last vehicles to be flown, NASA #CSM 002. Nothing has been spared to make this kit one of the most exacting scale models yet produced. The chrome mylar corrugated skin and plasticized roll pattern wrapper of the body will stand up under repeated handling for an indefinite period. The precisely scaled APOLLO capsule and tower is made from ultra-high impact plastic. Fins are pre-shaped of good quality balsa. Fairings are formed of lightweight vacu-form plastic. All details including dummy scale nozzle unit are provided in the kit. Assembly is challenging and rewarding.



Centuri

# NIKE SMOKE

## 1/10TH SCALE KIT

**NEW!  
PLASTIC NOSE CONE**

**BIG . . . IMPRESSIVE . . . ALMOST 2 FEET TALL**

A real collector's item and an exciting challenge for all rocketeers. This big, impressive model lifts slowly off the pad, streaks skyward almost out of sight, then returns safely suspended from a large 20" parachute.

### SCALE DATA SHEET

### PARACHUTE RECOVERY

### SCALE NOTE

*This kit is an exact 1/10th scale model of the solid propellant rocketsonde used by NASA to measure wind velocities at altitudes up to 75,000 feet. Chemicals emitted from the nose cone of the real NIKE SMOKE during the upper portion of the flight form a dense white "smoke" trail which is photographically recorded to show wind movements.*

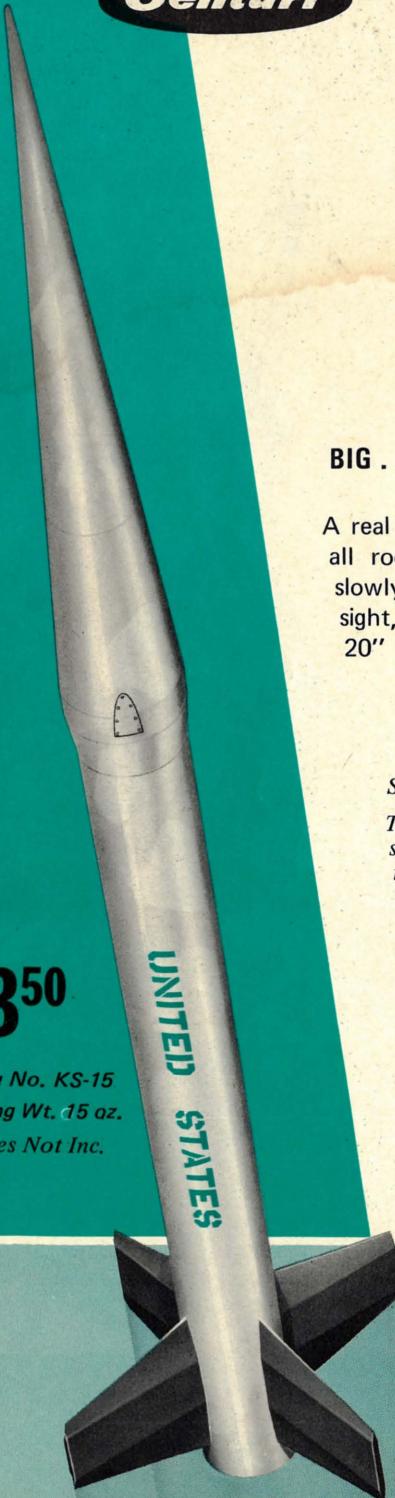
**\$3.50**

*Catalog No. KS-15*

*Shipping Wt. 15 oz.*

*Engines Not Inc.*

UNITED STATES



### SPECIFICATIONS

Length	23.6"
Body Dia.	1.64"
Net Wt.	2.3 oz.

### RECOMMENDED ENGINES

B4-2  
C6-5



# LITTLE JOE

Centurion

1/100 Scale

## SUPER SCALE SERIES

PLASTIC MOLDED TOWER  
CORRUGATED ALUMINUM "SKIN"  
PRE-PRINTED ROLL PATTERN  
NO PAINTING NECESSARY  
A SENSATIONAL BEGINNER'S SCALE KIT

A real high flyer! This sharp little kit is an exact scale replica of NASA # BP-13. Kit includes pre-shaped fin material, corrugated aluminum and pre-printed roll pattern wrappers, fin covering material, molded plastic APOLLO capsule and tower and accurate decals. This kit can be assembled into a beautiful model in a couple of hours—and with NO PAINTING REQUIRED. The LITTLE JOE flies as good as it looks. Try it!

### SINGLE ENGINE POWER

#### SPECIFICATIONS

Length 10.5"  
Body Dia. 1.54"  
Net Wt. 1.1 oz.

#### RECOMMENDED ENGINES

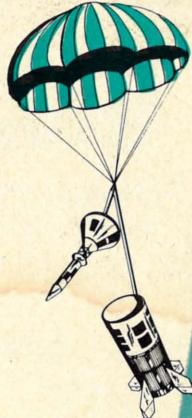
A5-2  
A8-3  
B4-4

Catalog No. KS-9

Shipping Wt. 12 oz.

Engines Not Inc.

**\$3.00**



Design your own "Apollo booster" to fit this beautifully detailed capsule-tower kit. Consists of injection molded styrene parts. Shipping Wt. 7 oz.

Cat. No. AP-100 \$1.00

"Apollo" body tube. Special body tube, 1.54" dia. x 6.4" long (.013 wall thickness) fits APOLLO capsule. Shipping Wt. 6 oz.

Cat. No. EEE-4 50¢ each

"Apollo" engine mount. Light weight engine mount fits above listed body tube. Includes engine lock. Shipping Wt. 4 oz.

Cat. No. EM-154 50¢ each



# BLACK WIDOW

**TWO STAGE ROCKET KIT WITH DUAL  
RECOVERY SYSTEM  
ELECTRIFYING FLIGHTS**

**2ND STAGE PARACHUTE RECOVERY  
GLIDING BOOSTER RECOVERY  
IMPROVED BOOSTER DESIGN  
PLASTIC NOSE CONE  
PRE-PRINTED FINS**

**SPECIFICATIONS**

Body Dia. ----- 0.76"  
Length ----- 15"  
Net Wt. ----- 1.3 oz.

Simple to build yet features advanced design. Unusual "booster" glides slowly back to Earth after separation, while the 2nd stage continues to climb. Positive sustainer ignition is insured by Centuri's new Pass-Port Staging System. Second stage is recovered by parachute. Special "BLACK WIDOW" decal included.

Altitude range from 300' to 1850' (½A to C engines)

Catalog No. KB-6  
Shipping Wt. 10 oz.  
Engines Not Included  
Pat. Pending

**\$200**

**RECOMMENDED  
ENGINES**

1st Stage	2nd Stage
½A6-0	½A6-4
A8-0	A5-4
B6-0	B4-6
B14-0	B6-6
C6-0	C6-7

**\$175**

Flights over 500'

**SPECIFICATIONS**

Length ----- 9"  
Body Dia. ----- 0.908"  
Net Wt. ----- 0.90 oz.

*Pat. Pending*

# FIREFLY

**THE WORLD'S SMALLEST  
TWO STAGE ROCKET!**

Only 9" long, the FIREFLY packs a lot of altitude into a very small package. Centuri's Pass-Port staging provides reliable upper stage ignition. The FIREFLY streaks nearly out of sight, then returns by "high-drag" streamer. Booster tumble recovers. Fly 2nd stage by itself for excellent single-stage flights.

Catalog No. KA-6  
Shipping Wt. 9 oz.  
Engines Not Included

**RECOMMENDED ENGINES**

Booster	Sustainer
½A6-0S	½A6-4S

Centuri

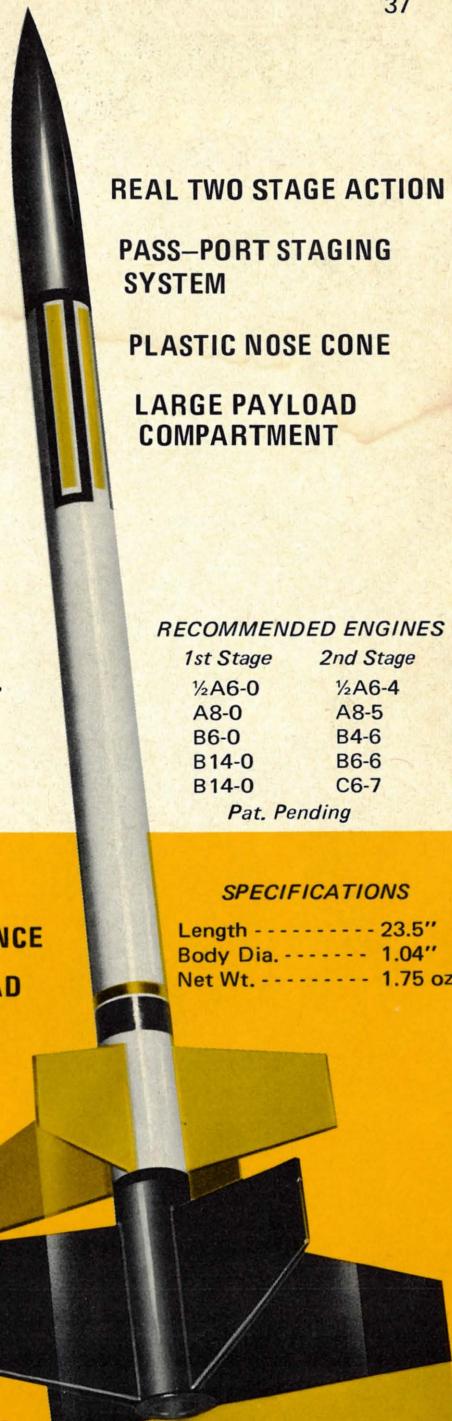
# ARCON-HI

## TWO-STAGE SOUNDING ROCKET

A two stage version of the ARCON shown on the opposite page, the ARCON-HI is one of the real high altitude birds in the Centuri line. Pass-Port Staging will insure perfect second stage ignition every time. Kit is complete with smooth plastic nose cone, big parachute and decals.

# \$300

Catalog No. KC-3  
Shipping Wt. 14 oz.  
Flights from 200' to 1900'



# ARCON

## A GREAT SPORTS MODEL

A 1/6th semi-scale model of the 11 ft. long sounding rocket built by ARC in 1958 for atmospheric testing. Large capsule will carry your payloads to high altitudes and return them safely on a large parachute. Kit is complete.

# \$225

Catalog No. KC-1  
Shipping Wt. 10 oz.

### SPECIFICATIONS

Length ----- 20.5"  
Body Dia. ----- 1.04"  
Net Wt. ----- 1.25 oz.



### SPECIFICATIONS

Length ----- 23.5"  
Body Dia. ----- 1.04"  
Net Wt. ----- 1.75 oz.

### RECOMMENDED ENGINES

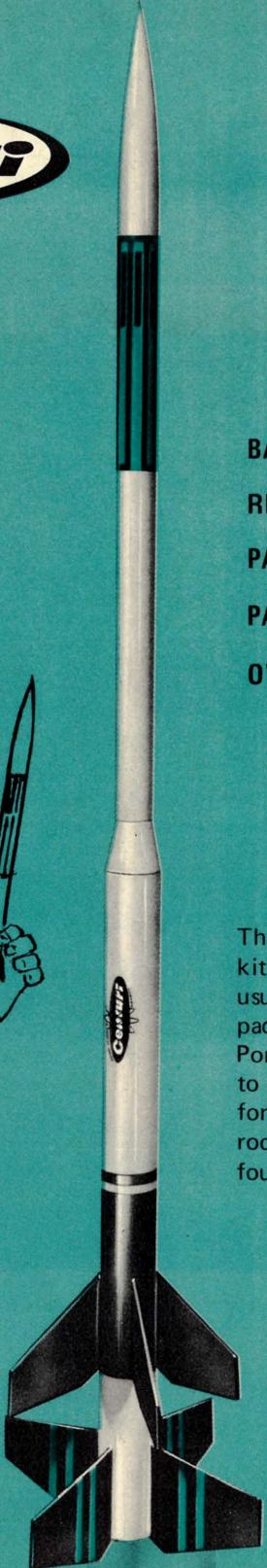
1/2A6-2 A8-3 B6-4 C6-5



#### SPECIFICATIONS

Length - - - 35.5"  
 Body Dia. - - 1.34"  
 Net Wt. - - - 2.5 oz.

*Pats. Pending*



# LONG TOM

BAFFLE EJECTION SYSTEM  
 REQUIRES NO CHUTE WADDING  
 PARACHUTE RECOVERY  
 PASS-PORT STAGING  
 OVER 35" LONG

**\$350**

Catalog No. KC-4  
 Shipping Wt. 16 oz.  
 Engines Not Inc.

The long, sleek lines of this two stage kit are sure to attract more than the usual amount of interest on the launch pad. Centuri's new innovations, Pass-Port Staging and Baffle Ejection help to make the LONG TOM tops in performance. If you want a big impressive rocket for a low price — then you've found it.

#### RECOMMENDED ENGINES

1st Stage	2nd Stage
A8-0	A5-2
B6-0	B4-4
B14-0	B6-6
C6-0	C6-7

*Capable of flights to 1700' using C engines.*

**\$3.00**

Catalog No. KC-15  
Shipping Wt. 15 oz.  
Engines Not Inc.

# Centaur

**TWO STAGE  
CARRIER ROCKET**

**BIG PAYLOAD CAPACITY**

**PARACHUTE RECOVERY**

**LAUNCH MANY TIMES**

A real payload booster! Launch up to 2 ounces! Pass-Port Staging provides positive ignition for the 2nd stage. CENTAUR 2nd stage returns by large 16" parachute. Booster "tumble-recovers". Complete kit includes decals.

**SPECIFICATIONS**

Capsule Dia. --- 1.34"  
Body Dia. --- 1.04"  
Length --- 21"  
Net Wt. --- 1.9 oz.  
Pat. Pending

**RECOMMENDED ENGINES**

	<i>1st Stage</i>	<i>2nd Stage</i>
A8-0	A5-4	
B6-0	B4-6	
B14-0	B6-6	
B14-0	B14-6	
C6-0	C6-7	

*Flights from 400' to 2000' altitude.*

## MICRO-PROBE

*Altitude range from 250' (½A engines) to 1850' (C engines).*

**TWO STAGE KIT    PLASTIC NOSE CONE  
SEE THRU PAYLOAD CAPSULE**

Using Centuri's new Pass-Port Staging System, the MICRO PROBE can carry your payloads to very high altitudes. Use the clear plastic capsule to launch insects and other specimens. Booster "tumble-recovers" while the 2nd stage returns safely by parachute. May be flown with or without booster. Includes decals.

**SPECIFICATIONS**

**RECOMMENDED ENGINES**

	<i>1st Stage</i>	<i>2nd Stage</i>
1.05"	½A6-0	½A6-4
0.76"	A8-0	A5-4
16.2"	B6-0	B4-6
1.2 oz.	B14-0	B6-6
	C6-0	C6-7

**\$2.50**

Catalog No. KB-22  
Shipping Wt. 10 oz.  
Engines Not Inc.

**A "two stage bird" for beginners!**

# Marauder two-stage

The ideal beginning multi-stage rocket. Real two-stage action provides spectacular flights. This easy to construct sports model will make you the envy of the neighborhood launch group. The MARAUDER's booster section tumbles gently to earth and the second stage is "recovered" by large colorful parachute. Reliable 2nd stage ignition is insured by use of Centuri's exclusive Pass-Port staging system. Fly it over and over. The upper stage makes a great single stage rocket too! Kit is complete with decals and step-by-step instructions.



## PAYLOAD SOUNDING ROCKET

**\$275**

Catalog No. KC-45  
Shipping Wt. 12 oz.  
*Engines Not Included*



**RELIABLE OPERATION**

**GREAT BEGINNER "MULTI-STAGER"**

**PLASTIC NOSE CONE**

**BIG CHUTE - BRINGS IT BACK GENTLY**

### RECOMMENDED ENGINES

1st Stage	2nd Stage
A8-0	A8-5
B6-0	B4-6
B14-0	B6-6
C6-0	C6-7

### SPECIFICATIONS

Length	-----	18"
Body Dia.	-----	0.908"
Net Wt.	-----	1.1 oz.

Centuri



Designed for the experienced rocketeer, the T-BIRD demonstrates the method of reaching high altitudes through staging of engines. Pass-Port Staging makes ignition a breeze. First and Second stages recover by "tumbling" while the third stage returns by colorful parachute to be flown again and again.



**\$3.50**

Catalog No. KC-9  
Shipping Wt. 14 oz.  
Engines Not Included

OPTIONAL VERSION OF THE T-BIRD WITH  
A 1.34" DIA. PAYLOAD CAPSULE **\$4.00**

Catalog No. KC-9A

**SPECIFICATIONS**

Body Dia. ----- 1.04"  
Length ----- 21.5"  
Net Wt. ----- 2.9 oz.

**VISIBLE PAYLOAD CAPSULE  
PLASTIC NOSE CONE  
REAL THREE STAGE ACTION  
SPECTACULAR FLIGHTS**

**RECOMMENDED ENGINES**

1st Stage	2nd Stage	3rd Stage
B14-0	A8-0	A8-5
B14-0	B6-0	B4-6
B14-0	B14 -0	B6-6
B14-0	C6-0	C6-7

# NEW

A REAL EYE OPENER!

# SST shuttle I

Long, sleek and impressive, the Centuri SST-SHUTTLE blasts skyward in spectacular flight. At peak altitude, the rocket plane separates for a long sweeping glide back to earth. The SST deploys a large parachute and begins descending, not hanging by the nose, but horizontally — in flying position! This kit is a must! Complete with detailing parts, SST "Concepts Report" and large full-color decals.



#### SPACE SHUTTLE

Length 8.5"  
Body Dia. 0.76"

#### S.S.T.

Length 22.5"  
Body Dia. 1.04"  
Net Wt. 2.6 oz. (TOTAL)

#### RECOMMENDED ENGINES

B4-2 C6-3

**RELIABLE SINGLE-ENGINE POWER  
THRILLING FLIGHTS  
GLIDE RETURN ROCKET PLANE  
PARACHUTE RECOVERY S.S.T.  
SPECIAL SST-SHUTTLE REPORT**

Catalog No. KC-17  
Shipping Wt. 18 oz.  
Engines Not Inc.

**\$350**

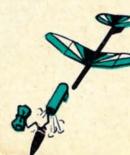
**Centuri**

# "SWIFT"

## Front Engine "Pop-Pod" BOOST GLIDER

Whoosh!! . . . this amazing bird streaks hundreds of feet straight up, turns over at peak altitude, and ejects the "Pop-Pod". Then it starts into a long soaring glide and slowly circles back to Earth; coming in for a smooth safe landing. The "Pop-Pod" falls separately, slowed by a colorful parachute. Perfect model for glide duration contests and demonstrations. Recommended for the experienced modeler. Includes all parts plus complete detailed assembly instructions.

At peak altitude  
POP-POD ejects  
& GLIDE starts



POP-POD returns by  
colorful parachute

**\$200**

Catalog No. KBG-3  
Shipping Wt. 14 oz.

Slow soaring  
GLIDE return

WHOOSH!!!  
Rocket Powered

#### SPECIFICATIONS

Overall Length --- 16.5"  
Wing Span ----- 11.8"  
Glider Weight --- 1.0 oz.

#### RECOMMENDED

#### ENGINES

A5-2  
B4-2

AMAZING IN FLIGHT



GLIDE RECOVERY

# mach 10

## ROCKET PLANE

### RUGGED – EASY TO CONSTRUCT

The MACH-10 screams skyward at speeds better than 100 m.p.h. Pealing off at peak altitude, the MACH-10 ejects a target marker (with streamer), then, after a couple of loops, settles into a circular glide path earthward. Making a "wheels up" landing, the MACH-10 skids gently to a stop on its belly tank.

Great for neighborhood contests. In a "MACH-10 Competition", you can see who can drop the target marker closest to a prescribed ground target, you can compete for glide endurance times, you can try for spot landings on a "runway" marked out on the ground. Fun to fly and easy to construct, the MACH-10 comes complete with all parts, illustrated instructions, and three-color decals.

**\$225**

Cat. No. KA-4  
Shipping Wt. 16 oz.  
Engines Not Inc.

### SPECIFICATIONS

Length	12"
Body Dia.	1.64"
Wing Span	11"
Net. Wt.	1.85 oz.
Glide Wt.	1.35 oz.

RECOMMENDED ENGINES

B4-2

C6-3

# FOR DEMONSTRATION and DISPLAY

# VISIBLE Astro

**Centuri**

## STATIC DISPLAY MODEL KIT

An unusual and interesting display model, the VISIBLE ASTRO is ideal for use in explaining the workings of a model rocket. The clear plastic body reveals all the internal components including a beautifully molded plastic cutaway version of a typical model rocket engine.

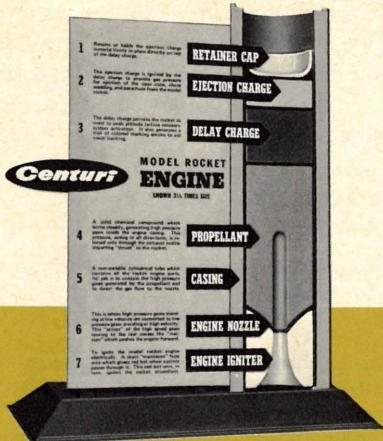
### SPECIFICATIONS

Length 16"  
Body Dia. 1.03"

Catalog No. KC-10  
Shipping Wt. 12 oz.

**\$3.00**

*Note: This is not a flying model rocket.*



## Cut-a-way ENGINE DISPLAY\*

GREAT FOR DEMONSTRATION TALKS

A terrific item for science fairs and demonstration talks. CUT-AWAY ENGINE measures a big 2 3/4" x 10". Easily assembled from 2 piece molded plastic sections. Complete with pressure sensitive colored paper segments to signify various elements of engine. Engine can be removed from display base.

Catalog No. KE-7  
Shipping Wt. 10 oz.

**\$5.00**



Centuri

# MODEL ROCKET

## ENGINES TO POWER YOUR



### CENTURI MODEL ROCKET ENGINES

These compact, energetic engines provide the "thrust" power which propels all those rocket kits shown in pages 8 thru 44 of this catalog. Four different engine power levels are available. These power levels, called "Total Impulse Classes" are officially set by the National Association of Rocketry (NAR) and the Federation Aeronautique Internationale (FAI).

Within each Total Impulse class, Centuri provides several different engine ejection delay times. This enables you to select the engine which will give the best performance for any model rocket size and weight.

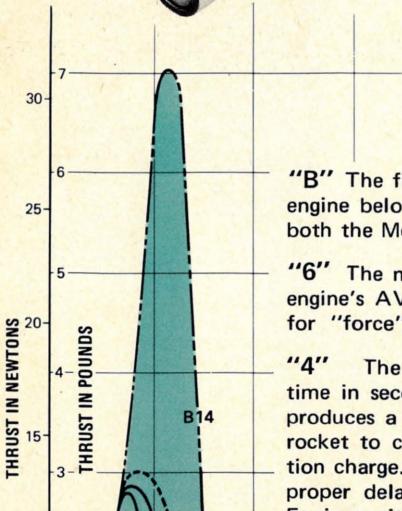
### MODEL ROCKET ENGINE CODING

Each Centuri model rocket engine is marked with a code which, when understood, provides the rocketeer with useful information concerning the performance of that engine. To permit world-wide model rocket competition, the new engine coding is now based on the Metric system. Referring to the engine shown at the left:

**"B"** The first letter specifies the TOTAL IMPULSE class to which an engine belongs. The official NAR/FAI Total Impulse classification in both the Metric and English measurement systems are shown on p. 47.

**"6"** The number following the total impulse code letter specifies the engine's AVERAGE THRUST in "Newtons", which is the metric unit for "force". (4.45 Newtons of force equals 1 pound of force).

**"4"** The third symbol (following the dash) represents the length of time in seconds that the ENGINE DELAY burns. The delay charge produces a high visibility smoke trail to aid tracking, and allows the rocket to coast upward to its peak altitude before activating the ejection charge. Centuri's TIR-100 (see page 78) shows how to select the proper delay time for a given engine type, rocket size and weight. Engines with an 'S' following their code numbers are one inch shorter than standard to save weight.



COMPARATIVE THRUST-TIME PERFORMANCE GRAPHS

TIME IN SECONDS

# ENGINE INFORMATION

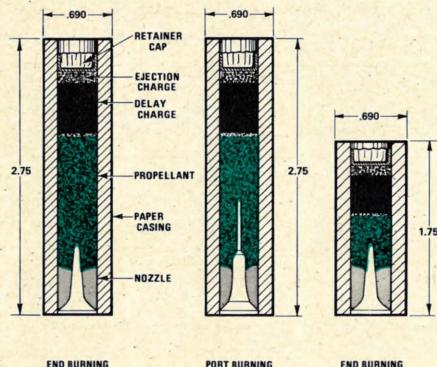
## SINGLE, MULTI-STAGE & CLUSTER ROCKETS

### CODED TOTAL IMPULSE CHART

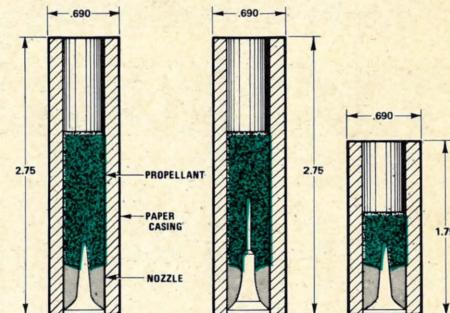
ENGINE TYPE	TOTAL IMPULSE IN NEWTON-SECONDS	TOTAL IMPULSE IN POUND-SECONDS
½A	0.626 to 1.25	0.15 to 0.28
A	1.26 to 2.50	0.29 to 0.56
B	2.51 to 5.00	0.57 to 1.12
C	5.01 to 10.00	1.13 to 2.24

Total Impulse is actually a measure of the total available packaged power within a rocket engine. It is found by multiplying the average thrust force of a rocket engine by its thrust duration. It immediately allows you to compare the power difference between one rocket engine and another. The higher the Total Impulse, the higher a rocket of a given size and weight will go.

### EJECTION CHARGE ENGINES



### BOOSTER ENGINES



EJECTION CHARGE ENGINES contain a slow burning Delay Charge which is ignited at the instant of propellant burnout. This smoke producing delay charge provides no thrust, but allows the rocket to coast upward to maximum altitude before the ejection charge ignites. This ejection charge provides the sudden high pressure in the body tube which forces the parachute and nose cone out.

Ejection Charge Engines are printed in GREEN or PURPLE. A Green label means that the Delay time is best for average Single-Stage Rocket, while Purple means the engine has a longer Delay time — generally needed for the longer Coasting Sustainer of a Multi-Stage Rocket.

BOOSTER ENGINES have "zero" ('0') delay times, meaning that they have no ejection charge at all. They are intended for the Boosters of multi-stage rockets only. At the instant of propellant burnout, hot gases issue forth from the forward end of the casing which ignite the engine in the next stage. All Booster engines are printed with a red label.

### END BURNING VS. PORT BURNING

Excepting the B14 engines, all ½A thru C engines are essentially END BURNERS. The B14 engine is a PORT BURNER design which consumes the propellant faster, producing higher thrust levels and correspondingly higher accelerations. B14's are ideal for lifting payloads.

centuri

## ROCKET ENGINE SPECIFICATIONS &amp; PRICES



## CHOOSING THE RIGHT ENGINE FOR YOUR MODEL ROCKET

The heart of Centuri's program is the reliable, model rocket engine. Engines listed in the chart below are designed for use with the Rocket Kits shown on pages 8-45 and with your own rocket designs built from Custom Parts (pages 54-57). If you are new to model rocketry, we recommend that you use only those engines recommended for each kit you build.

As you gain experience, you will be able to judge whether a previously flown rocket can safely use a longer or shorter delay.

All Centuri model rocket engines come with these extras:

IGNITER WIRE

MOUNTING INSTRUCTIONS

IGNITION INSTRUCTIONS

LAUNCHING INSTRUCTIONS

Catalog Number & Type	PRICES		Total Impulse		Average Thrust		Thrust Duration	Delay Time +15%	Initial Weight		Propellant Wt.	Recom. Max. lift off wt. (with engines)	Altitude range for typical rockets with the following body tube diameters:					
	EACH	3 FOR	Lb-sec	N-sec	Ounces	Newton			Ounces	Grams			.760 dia. #7	.908 dia. #8	1.04 dia. #10	1.34 dia. #13	1.64 dia. #16	2.04 dia. #20

## SINGLE STAGE ENGINES (Green Label)

1/2A6-2	.40	.80	.28	1.25	22.40	6.23	.20 sec	2 sec	.53	15.0	.055	1.56	2.5 oz	80' to 100'	70' to 100'	50' to 60'	N/A	N/A	N/A
1/2A6-2S	.40	.80	.28	1.25	22.40	6.23	.20 sec	2 sec	.41	11.6	.055	1.56	2.5 oz						
A5-2	.45	.90	.56	2.50	17.92	4.98	.50 sec	2 sec	.59	16.7	.110	3.12	3.0 oz	400' to 475'	250' to 300'	200' to 240'	180' to 210'	100' to 130'	N/A
A8-3	.45	.90	.56	2.50	28.00	7.81	.32 sec	3 sec	.57	16.2	.110	3.12	4.0 oz						
B4-2	.50	1.00	1.12	5.00	14.93	4.15	1.20 sec	2 sec	.70	19.8	.294	8.33	3.5 oz						
B4-4	.50	1.00	1.12	5.00	14.93	4.15	1.20 sec	4 sec	.74	21.0	.294	8.33	3.5 oz	800' to 875'	500' to 800'	500' to 700'	470' to 500'	275' to 400'	180' to 200'
B6-4	.50	1.00	1.12	5.00	21.59	6.00	.83 sec	4 sec	.78	22.1	.220	6.24	4.5 oz						
B14-5	.55	1.10	1.12	5.00	51.20	14.23	.35 sec	5 sec	.69	19.6	.220	6.24	5.0 oz						
C6-3	.60	1.20	2.24	10.00	21.08	5.86	1.70 sec	3 sec	.88	24.9	.440	12.48	4.0 oz	1400' to 1800'	1000' to 1650'	1000' to 1250'	800' to 1000'	700' to 825'	350' to 400'
C6-5	.60	1.20	2.24	10.00	21.08	5.86	1.70 sec	5 sec	.91	25.8	.440	12.48	4.0 oz						

## UPPER STAGE ENGINES OR SINGLE-STAGE FOR FEATHERWEIGHT MODELS (Purple Label)

1/2A6-4	.40	.80	.28	1.25	22.40	6.23	.20 sec	4 sec	.54	15.3	.055	1.56	1.0 oz	80' to 100'	70' to 100'	50' to 60'	N/A	N/A	N/A
1/2A6-4S	.40	.80	.28	1.25	22.40	6.23	.20 sec	4 sec	.42	11.9	.055	1.56	1.0 oz						
A5-4	.45	.90	.56	2.50	17.92	4.98	.50 sec	4 sec	.64	18.1	.110	3.12	1.5 oz	400' to 475'	250' to 300'	200' to 240'	180' to 210'	100' to 130'	N/A
A8-5	.45	.90	.56	2.50	28.00	7.81	.32 sec	5 sec	.62	17.6	.110	3.12	2.0 oz						
B4-6	.50	1.00	1.12	5.00	14.93	4.15	1.20 sec	6 sec	.78	22.1	.294	8.33	1.5 oz						
B6-6	.50	1.00	1.12	5.00	21.59	6.00	.83 sec	6 sec	.71	20.1	.220	6.24	2.0 oz	800' to 875'	500' to 800'	500' to 700'	470' to 500'	275' to 400'	180' to 200'
B14-6	.55	1.10	1.12	5.00	51.20	14.23	.35 sec	6 sec	.71	20.1	.220	6.24	2.5 oz						
B14-7	.55	1.10	1.12	5.00	51.20	14.23	.35 sec	7 sec	.73	20.7	.220	6.24	3.5 oz						
C6-7	.60	1.20	2.24	10.00	21.08	5.86	1.70 sec	7 sec	.95	26.9	.440	12.48	2.5 oz	1400' to 1800'	1000' to 1650'	1000' to 1250'	800' to 1000'	700' to 825'	350' to 400'

## BOOSTER ENGINES (Red Label)

1/2A6-0	.40	.80	.28	1.25	22.40	6.23	.20 sec	none	.48	13.6	.055	1.56	3.5 oz						
1/2A6-0S	.40	.80	.28	1.25	22.40	6.23	.20 sec	none	.36	10.2	.055	1.56	3.5 oz	FOR MULTI STAGE ALTITUDE RANGES,					
A8-0	.45	.90	.56	2.50	28.00	7.81	.32 sec	none	.51	14.5	.110	3.12	4.0 oz	SEE SPECIFIC KIT CATALOG PAGES					
B6-0	.50	1.00	1.12	5.00	21.59	6.00	.83 sec	none	.58	16.4	.220	6.24	4.0 oz						
B14-0	.55	1.10	1.12	5.00	51.20	14.23	.35 sec	none	.61	17.3	.220	6.24	6.0 oz						
C6-0	.60	1.20	2.24	10.00	21.08	5.86	1.70 sec	none	.80	22.7	.440	12.48	4.0 oz						

METRIC SYSTEM CONVERSIONS									
4.45 Newtons (n)	=	1 pound (lb)							
28.35 grams (gm)	=	1 ounce (oz)							
16 ounces (oz)	=	1 pound (lb)							
25.4 millimeters (mm)	=	1 inch (in)							
2.54 centimeters (cm)	=	1 inch (in)							

## LAUNCH &amp; RECOVERY AREA

For the safe launching and recovering of model rockets, you need an open field away from obstructions such as buildings and power lines. This field should have its shortest side no less than one fourth (1/4) the expected maximum altitude of the rockets you're flying. (Refer to above chart for approximate altitudes.) If your rocket is going to fly 800 feet high, the shortest side of the launching field should be at least 200 feet in length.

## SURE-SHOT® IGNITERS

At Last — A Reliable Engine Igniter for both Single & Clustered Engines

Positive engine ignition every time. Solves the problem of simultaneous ignition of clustered engines. Also perfect for single-stage flights. Use with all engines on this page. Comes in kit form — assembled in seconds. Complete instructions for assembly and use.

IG-12 Kit of 12 for 60¢



*A Real Breakthrough in Model Rocket Launching Systems!*

**Centuri**

# SERVO LAUNCHER

This unique launcher features a completely new firing concept. The firing switch, built into the launcher, is actuated by air pulsed through a 12' long plastic cable from a plunger-type firing button. This system eliminates cables and reduces the amount of power required. Now, two photo-flash batteries do the same job that required six with the old system. With the continuity light built into the launcher, it is no longer necessary to walk back to the firing panel to verify electrical continuity. Safe and simple to use, this realistically styled launcher even converts into a display stand for showing off your favorite rocket. Hi-impact, brightly colored parts can be assembled in minutes. Comes complete with everything but batteries.

**\$5.50**

Catalog No. LIA-65  
Shipping Wt. 2 lbs.  
Batteries Not Inc.

COMPLETE WITH AIR CABLE  
AND FIRING CONTROL HANDLE.

ADJUSTABLE LEGS FOLD FOR  
EASY CARRYING. 3 POINT  
TRIPOD DESIGN PERMITS  
LAUNCHING FROM ANY TERRAIN.

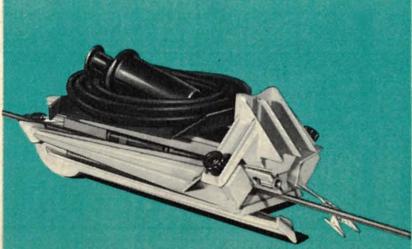
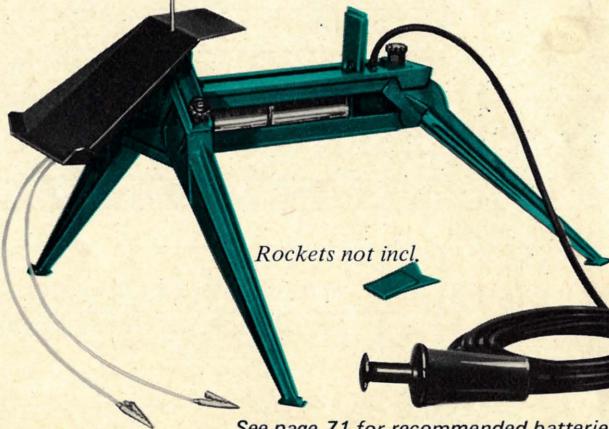
COMPLETELY DISASSEMBLES  
IN SECONDS FOR COMPACT  
STORAGE.

UNIQUE AIR-ACTUATED SYSTEM  
ELIMINATES CABLES  
AND HEAVY DUTY POWER

COUNTLESS LAUNCHINGS ON  
JUST 2 PHOTO-FLASH BATTERIES.

BATTERIES FIT INSIDE THE  
LAUNCHER - NO EXTERNAL  
CONNECTIONS.

CONTINUITY LIGHT BUILT IN  
TO LAUNCHER - "WHERE THE  
ACTION IS".



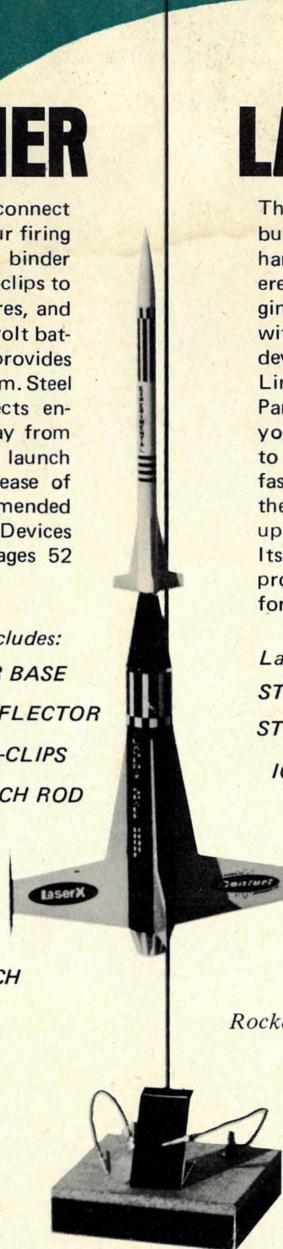
*Launch your Rocket Electrically . . . Just like the Pros!*

## LIA-50 LAUNCHER

**Easy-to-use!!** Simply connect the firing line from your firing control switch to the binder posts, attach the micro-clips to the engine's igniter wires, and hook up to a 6 or 12 volt battery. Sturdy base provides stable launching platform. Steel exhaust deflector directs engine exhaust gases away from launcher. Two-piece launch rod comes apart for ease of transportation. Recommended for use with Ignition Devices that are shown on pages 52 and 53.

*Launcher Assembly Includes:*

**STURDY LAUNCHER BASE**  
**STEEL EXHAUST DEFLECTOR**  
**ELECTRICAL MICRO-CLIPS**  
**COLLAPSIBLE LAUNCH ROD**  
**ASBESTOS PAD PROTECTOR**  
**COMPLETE HARDWARE SET**  
**ASSEMBLY & LAUNCH INSTRUCTIONS**



**\$3.00**

Catalog No. LIA-50  
Shipping Wt. 2 lbs.

### LAUNCHING ROD



Two-piece, 1/8" steel rod. Two lengths telescope together to form 36" long launching guide. Shipping wt. 5 oz.

LR-125

50¢ each

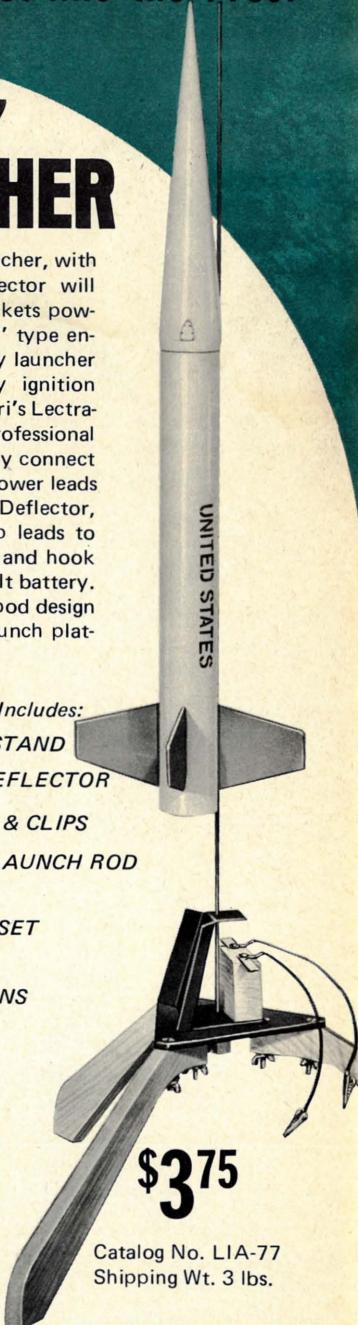
## LIA-77 LAUNCHER

This heavy duty launcher, with built-in Igniter-Deflector will handle all model rockets powered by 1/2A thru 'D' type engines. Use this handy launcher with practically any ignition device, such as Centuri's Lectra-Line 1 or 2 or Professional Panel EP-612. Simply connect your firing control power leads to tabs on back of Deflector, fasten the micro-clip leads to the engine's igniter, and hook up to your 6 or 12 volt battery. Its self balancing tripod design provides a sturdy launch platform on any terrain.

*Launcher Assembly Includes:*

**STURDY TRIPOD STAND**  
**STEEL IGNITER-DEFLECTOR**  
**IGNITION LEADS & CLIPS**  
**COLLAPSIBLE LAUNCH ROD**  
**COMPLETE HARDWARE SET**  
**LAUNCHING INSTRUCTIONS**

*Rockets not incl.*



**\$3.75**

Catalog No. LIA-77  
Shipping Wt. 3 lbs.

### STEEL EXHAUST DEFLECTOR



Heat treated steel deflector angles the engine's exhaust away from the rocket and launcher. Shipping wt. 5 ozs.

ID-50

55¢ each

### IGNITER DEFLECTOR



Combination blast deflector and insulator mount for ignition clips. Wire leads with micro-clips attached. Fits any 1/8" launch rod. Ship wt. 8 ozs.

ID-77

\$1.50 each

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Centuri

**MODEL ROCKET****THE SAFE "PROFESSIONAL" WAY TO LAUNCH****CENTURI  
MODEL  
ROCKET  
ENGINES**

All Centuri model rocket engines come with these extras:

IGNITER WIRE  
MOUNTING INSTRUCTIONS  
IGNITION INSTRUCTIONS  
LAUNCHING INSTRUCTIONS

**CLUSTER ENGINE FLIGHTS**

High altitude payload rockets can be built using 2, 3, or 4 engines all firing together at the same time. This technique is called "clustering". Centuri's new Tech Report #TIR-52 (see p. 78) shows you how to set up and get reliable cluster flights using SURE-SHOT igniters.



Pat. No. 3,422,763

**SURE-SHOT® IGNITERS**

*At Last — A Reliable Engine Igniter for both Single & Clustered Engines*

Positive engine ignition every time. Solves the problem of simultaneous ignition of clustered engines. Also perfect for single-stage flights. Use with all engines pages, 48-49. Comes in kit form — assemble in seconds. Complete instructions for assembly and use.

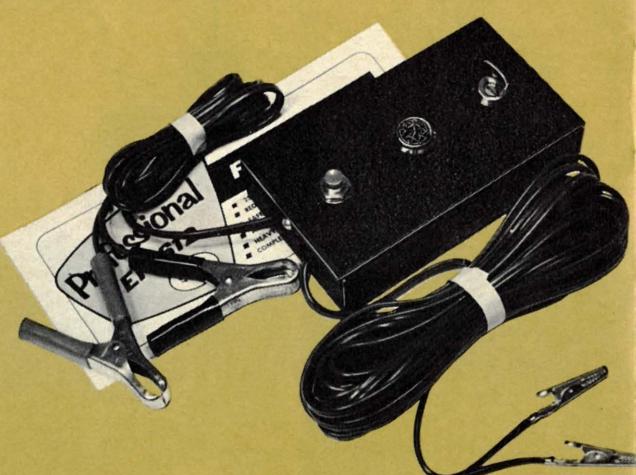
**IG-12** Kit of 12 for 60¢

© 1968 Tech Model Co., Inc., 1700 S. 200 E., Salt Lake City, Utah

SAFETY KEY  
INCLUDED



SAFETY KEY  
INCLUDED



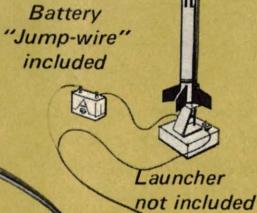
# FIRING CONTROL PANELS

ALL YOUR MODEL ROCKETS — ELECTRICALLY

**Centuri**

## LECTRA-LINE 1

### LAUNCH CONTROL PANEL KIT



Launch all your model rockets with this "professional type", sharp looking, firing control panel. Designed primarily for use with Centuri LIA-50, 77 and 100 launchers. Use with 6 or 12 volt power supply. Safety interlock requires "Safety Key" be inserted before system will operate. "Continuity check" light tells you if firing circuit is complete. Spring return firing switch gives you full control over exact moment of launch. Includes safety key, warning light, 15 ft. firing line, battery jump wire, plus complete launching instructions.

**\$350**

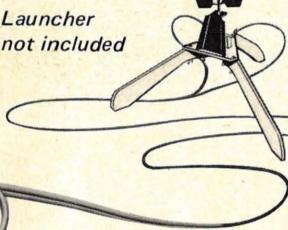
Cat. No. EFC-1  
Ship. Wt. 12 oz.

Any 6 or 12 V Lantern Battery, Eveready #731, Burgess TW-1, Ray-O-Vac #918

**Centuri**

## LECTRA-LINE 2

### FIRING CONTROL PANEL KIT



Launch all your model rockets from any launcher using power directly off car battery — without removing battery from car. Use also with any 6 or 12 volt dry cell battery. Safety interlock requires "Safety Key" be inserted before panel will operate. "Continuity check" light tells you if firing circuit is complete. Spring return push button gives you full control over launch. Includes safety key, 20 ft. firing line, 5 ft. power cord with large Battery Clips.

**\$450**

Cat. No. EFC-2  
Ship. Wt. 14 oz.

Recommended Batteries: Ray-O-Vac #918, Eveready #731, Burgess TW-1. Any 6 or 12 volt car battery.

**Centuri**

## PROFESSIONAL FIRING PANEL

Professional quality, safety engineered, electrical firing panel provides safest switching for igniting and launching all model rockets. Hook up to any launcher and any 6 or 12 volt battery. Use car battery direct from car. Safety interlock requires that key be inserted and turned before panel will operate. "Continuity check" warning light tells you if firing circuit is complete. Aluminum panel measuring 5 1/2 x 3 x 1 1/2 has removable face. Contains safety key switch, red warning light, and red push button switch. Includes 25 ft. firing line, 5 ft. power cord with heavy duty battery clips.

SAFEST IGNITION DEVICE  
SAFETY KEY INTERLOCK  
CONTINUITY CHECK LIGHT  
ALUMINUM PANEL BOX  
25 FT. FIRING LINE  
COMPLETE INSTRUCTIONS

**\$1295**

Catalog No. EP-612  
Shipping Wt. 1 1/2 lbs.

Recommended Batteries: Ray-O-Vac #918, Eveready #731, Burgess TW-1. Any 6 or 12 volt car battery.



# CUSTOM ROCKET

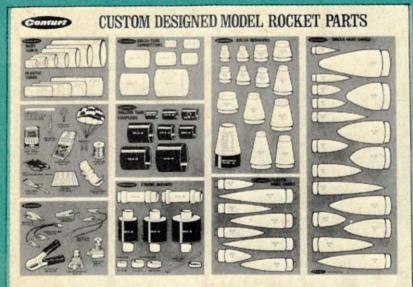
**DESIGNING AND BUILDING YOUR**

# FREE! 32-PAGE DESIGN MANUAL



Jam packed with construction tips, design theories, rocket plans and flight data. This storehouse of information is yours--absolutely free.

## CUSTOM PARTS WALL CHART



The perfect reference chart for designing your own CUSTOM MODEL ROCKETS. It illustrates, in actual size, the basic parts you need and provides you with cost and catalog number. A must for club-rooms, classes and Custom Designers. Printed on heavy poster stock in 2 colors.

Large 21" x 29" size

Catalog No. OP-1011

Shipping Wt. 8 oz.

\$1.00

### WHAT IS A CUSTOM ROCKET?

After building and launching several rockets from kits, and after reading Centuri's TECHNICAL REPORTS (see page 78), you'll probably have many ideas for designing a unique and different model rocket of your own. In the following pages, you will find all the parts needed to custom build your own rocket designs.

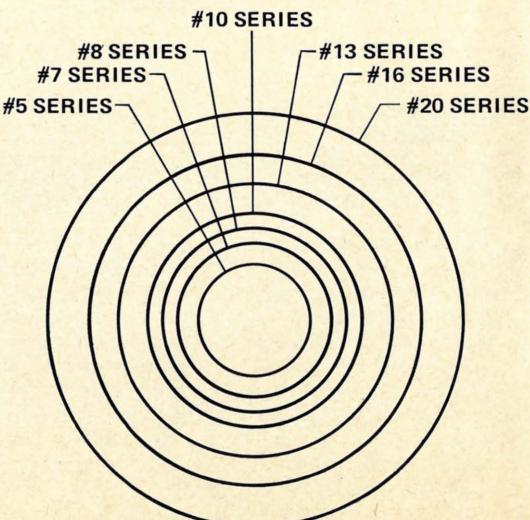
Most model rockets require these components:

BODY TUBE	STABILIZER FINS
NOSE CONE	RECOVERY DEVICE
LAUNCH LUG	ENGINE MOUNT

All these components are shown in the following pages. The "Solid Connectors", "Tube Couplers", and "Reducers" will enable you to come up with different tube combinations, different recovery systems, and many styles of payload capsules.

### HOW TO ORDER CUSTOM PARTS

All mating parts will have the same SERIES number. For instance, any #8 Series BODY TUBE will fit any #8 Series NOSE CONE, #8 Series Engine Mount, #8 Connector, etc. By using either the Balsa or Paper Reducers, any combination of parts series can be joined together for unusual designs.



TUBES SHOWN ACTUAL SIZE

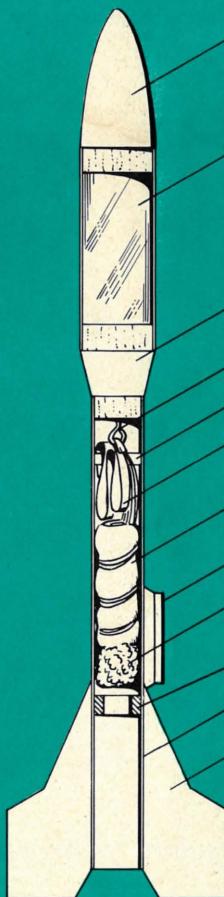
# PARTS AND ACCESSORIES

OWN ROCKETS IS FUN...AND EDUCATIONAL

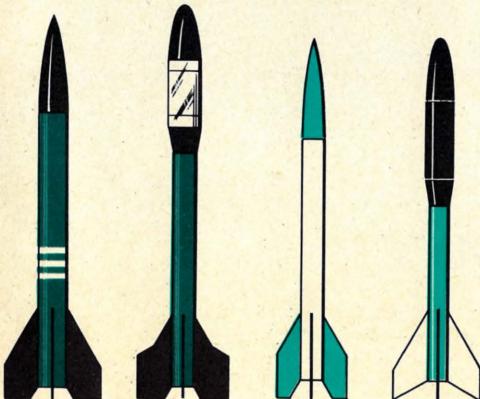
55



**PLAN #1**  
TYPICAL SINGLE STAGE ROCKET



**PLAN #2**  
TYPICAL PAYLOAD ROCKET



THE FOLLOWING PAGES  
CONTAIN ALL PARTS  
NECESSARY FOR BUILD-  
ING YOUR OWN DESIGN  
ROCKET.



**Centuri****CUSTOM ROCKET****DESIGN YOUR OWN HIGH PERFORMANCE****BEGINNER'S  
SPECIAL****\$8.90 Value  
Only \$4.95**

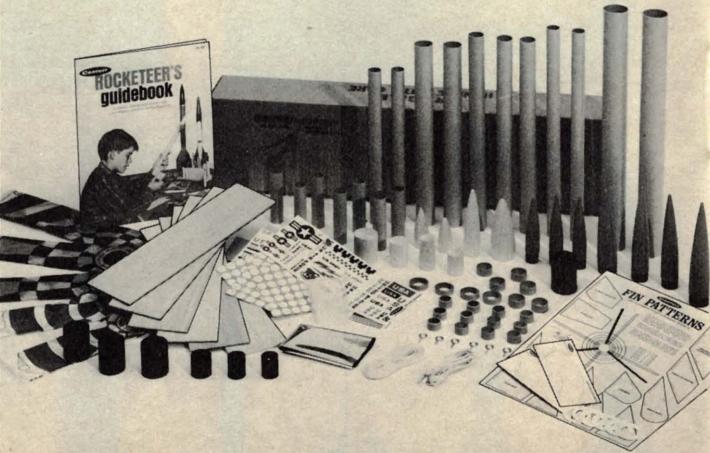
Catalog No. SPA-4

**DESIGNER'S  
SPECIAL****\$15.25 Value  
Only \$9.95**

Catalog No. SPA-8

**Experimenter's  
SPECIAL****\$23.03 Value  
Only \$14.95**

Catalog No. SPA-12

*One of the "best buys"  
in the catalog!*

# PARTS ASSORTMENTS

ROCKETS FROM TOP QUALITY PARTS



Everything needed to design and build 6 single-stage rockets — and at real savings. This balanced selection of useful parts is perfect for the imaginative modeler who wants to create his own rocket designs. Includes helpful "Rocketeer's Guidebook". Offers many hours of fun and enjoyment.

1 Body Tube	ST-76	1 Fin Pattern Sheet	FPS-2	1 Sheet Tape Discs	TD-35
4 Body Tubes	ST-79	3 Balsa Fin Mat'l.	BFM-8	1 RI. Shroud Line	SL-70
1 Body Tube	ST-712	1 Balsa Fin Mat'l.	BFM-10	6 Elastic Shock Cord	SC-18
2 Nose Cones	BC-70	2 12" Parachutes	CP-12i	6 Thrust Rings	TR-7
2 Nose Cones	PNC-74	1 16" Parachute	CP-16i	6 Launch Lugs	LL-2
1 Nose Cone	BC-74	1 Mylar Chute Mat'l.	MCM-1	1 Rocketeer's Guidebook	
1 Nose Cone	PNC-76	3 Screw Eyes	SE-12		

What a bargain!! Over \$15.00 worth of supplies for only \$9.95. Design and build 8 big rockets. A balanced selection of supplies to get you started off right on building rockets with Custom Parts. Assortment includes "Rocketeer's Guidebook" and 1 sq. yard of our new chrome mylar chute material.

1 Body Tube	ST-73	1 Nose Cone	BC-103	2 16" Parachutes	CP-16i
1 Body Tube	ST-79	1 Nose Cone	PNC-106	1 Mylar Chute Mat'l.	MCM-1
1 Body Tube	ST-712	3 Thrust Rings	TR-7	2 Sheets Tape Discs	TD-35
1 Body Tube	ST-88	3 Engine Mounts	EM-8	1 RI. Shroud Line	SL-70
2 Body Tubes	ST-812	2 Engine Mounts	EM-10A	6 Elastic Shock Cord	SC-18
2 Body Tubes	ST-1010	1 Fin Pattern Sheet	FPS-2	8 Shock Cord Fasteners	SCF-1
1 Nose Cone	BC-70	2 Balsa Fin Mat'l.	BFM-8	8 Launch Lugs	LL-2
2 Nose Cones	PNC-74	4 Balsa Fin Mat'l.	BFM-10	1 Flag Decal	DC-35
1 Nose Cone	BC-83	1 Plastic Cap. Tube	CPT-83	3 Screw Eyes	SE-12
2 Nose Cones	PNC-89	2 12" Parachutes	CP-12i	1 Rocketeer's Guidebook	

## BUILD 8 BIG ROCKETS WITH THESE TOP QUALITY PARTS

All the parts needed to build many different single and multi-stage rockets, at big cost savings. Great for clubs and creative rocketeers who want to experiment with new designs. Includes "Rocketeer's Guidebook", decals and new mylar parachute material.

1 Body Tube	ST-73	3 Engine Mounts	EM-8	2 12" Parachutes	CP-12i
2 Body Tubes	ST-79	2 Engine Mounts	EM-10A	2 16" Parachutes	CP-16i
2 Body Tubes	ST-712	1 Engine Mount	EM-13	1 20" Parachute	CP-20i
3 Body Tubes	ST-812	1 Paper Reducer	PR-713	1 Mylar Chute Mat'l.	MCM-1
2 Body Tubes	ST-1010	1 Paper Reducer	PR-813	3 Sheets Tape Discs	TD-35
2 Body Tubes	ST-1313	1 Balsa Reducer	PR-78	1 RI. Shroud Line	SL-70
1 Nose Cone	BC-70	1 Tube Coupler	HTC-7D	6 Shock Cords	SC-18
1 Nose Cone	BC-72	1 Tube Coupler	HTC-8	3 Shock Cords	SC-20
2 Nose Cones	PNC-74	1 Tube Coupler	HTC-10	6 Screw Eyes	SE-12
1 Nose Cone	PNC-76	1 Balsa Connector	BTC-8	6 Launch Lugs	LL-2
1 Nose Cone	BC-83	1 Balsa Connector	BTC-10	3 Launch Lugs	LL-3
2 Nose Cones	PNC-89	1 Balsa Connector	BTC-13	1 Plastic Capsule Tube	CPT-82
1 Nose Cone	PNC-103	1 Fin Pattern Sheet	FPS-2	1 Plastic Capsule Tube	CPT-103
1 Nose Cone	PNC-106	1 Fin Mat'l.	BFM-8	1 Plastic Capsule Tube	CPT-134
1 Nose Cone	BC-132	4 Fin Mat'l.	BFM-10	1 Flag Decal	DC-35
6 Thrust Rings	TR-7	1 Fin Mat'l.	BFM-12	1 Mil. Insignia Decal	DC-3
				1 Rocketeer's Guidebook	



**Centuri**

# ROCKET BODY

• HEAT WELDED—STRONG—SMOOTH

## BODY TUBES

### SERIES

	Cat.No.	I.D.	O.D.	Length	Net Wt.	Ship Wt.	Each
--	---------	------	------	--------	---------	----------	------

**5**



ST-56	.515"	.543"	6.0"	.080 oz	4 oz	15¢
ST-512	.515"	.543"	12.0"	.160 oz	6 oz	25¢
ST-518	.515"	.543"	18.0"	.240 oz	10 oz	30¢

**7**



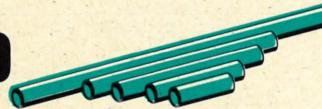
ST-73	.715"	.759"	3.0"	.048 oz	4 oz	10¢
ST-76	.715"	.759"	6.5"	.104 oz	5 oz	15¢
ST-79	.715"	.759"	9.0"	.144 oz	6 oz	15¢
ST-712	.715"	.759"	12.0"	.192 oz	8 oz	25¢
ST-718	.715"	.759"	18.0"	.288 oz	12 oz	30¢

**8**



ST-83	.865"	.908"	3.0"	.075 oz	4 oz	15¢
ST-87	.865"	.908"	7.3"	.183 oz	5 oz	20¢
ST-88	.865"	.908"	8.0"	.200 oz	6 oz	25¢
ST-810	.865"	.908"	10.0"	.250 oz	8 oz	30¢
ST-812	.865"	.908"	12.0"	.283 oz	9 oz	30¢
ST-818	.865"	.908"	18.0"	.450 oz	12 oz	35¢

**10**



ST-103	1.00"	1.04"	3.0"	.102 oz	4 oz	15¢
ST-105	1.00"	1.04"	5.0"	.170 oz	5 oz	20¢
ST-108	1.00"	1.04"	8.0"	.272 oz	8 oz	25¢
ST-1010	1.00"	1.04"	10.5"	.357 oz	10 oz	30¢
ST-1018	1.00"	1.04"	18.0"	.612 oz	12 oz	40¢

**13**



ST-133	1.30"	1.34"	3.0"	.123 oz	4 oz	15¢
ST-138	1.30"	1.34"	8.0"	.328 oz	8 oz	40¢
ST-1313	1.30"	1.34"	13.5"	.553 oz	10 oz	50¢
ST-1318	1.30"	1.34"	18.0"	.738 oz	12 oz	60¢

**16**



ST-163	1.60"	1.64"	3.0"	.156 oz	6 oz	15¢
ST-165	1.60"	1.64"	5.25"	.273 oz	8 oz	25¢
ST-1612	1.60"	1.64"	12.8"	.665 oz	10 oz	50¢
ST-1618	1.60"	1.64"	18.0"	.936 oz	12 oz	65¢

**20**



ST-205	2.00"	2.04"	5.0"	.329 oz	9 oz	30¢
ST-2012	2.00"	2.04"	12.0"	.789 oz	12 oz	65¢
ST-2018	2.00"	2.04"	18.0"	1.184 oz	14 oz	85¢

# TUBES & PLASTIC TUBING

LIGHTWEIGHT • • ULTRA-LIGHTWEIGHT—CLEAR •

## PLASTIC TUBING

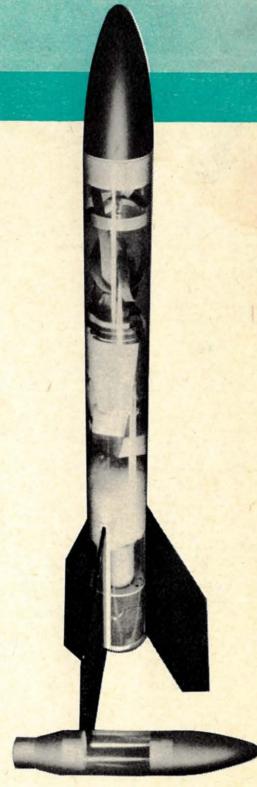
SERIES Cat.No. I.D. O.D. Length Net Wt. Ship Wt. Each

7	CPT-71	.715"	.741"	1.87"	.039 oz	3 oz	10¢
	CPT-72	.715"	.741"	2.75"	.060 oz	3 oz	15¢
	CPT-73	.715"	.741"	3.25"	.069 oz	3 oz	15¢
	CPT-78	.715"	.741"	8.0"	.170 oz	5 oz	25¢

8	CPT-82	.865"	.891"	2.5"	.065 oz	3 oz	15¢
	CPT-83	.865"	.891"	3.5"	.091 oz	4 oz	20¢
	CPT-811	.865"	.891"	11.25"	.292 oz	8 oz	30¢

10	CPT-102	1.00"	1.03"	2.5"	.080 oz	4 oz	15¢
	CPT-103	1.00"	1.03"	3.5"	.112 oz	4 oz	20¢
	CPT-1010	1.00"	1.03"	10.0"	.320 oz	8 oz	35¢
	CPT-1018	1.00"	1.03"	18.0"	.576 oz	12 oz	65¢

13	CPT-134	1.30"	1.33"	4.0"	.160 oz	4 oz	25¢
	CPT-136	1.30"	1.33"	6.0"	.240 oz	6 oz	30¢
	CPT-1312	1.30"	1.33"	12.0"	.480 oz	9 oz	45¢
	CPT-1318	1.30"	1.33"	18.0"	.720 oz	12 oz	65¢



## LAUNCHING LUGS

### WHAT IS A LAUNCH LUG?

A launch lug is a slender tube glued to a side of the rocket which slides over the steel guide rod on the launcher. This guides the rocket along the launch rod until it reaches sufficient air speed to become stable in flight.

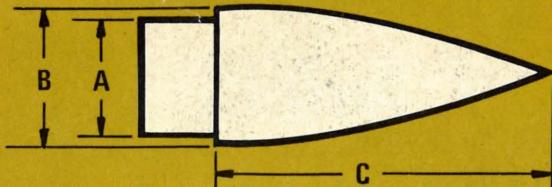
### MYLAR LUGS

Lightweight, strong lugs with hi-gloss finish. Micro-thin wall construction. Fits over 1/8" rod.

LL-1	1 1/4" long	6 for 15¢
LL-2	2 1/4" long	6 for 20¢
LL-3	3" long	6 for 25¢



60



## LIGHTWEIGHT BALSA

### SERIES

# 5



CAT. NO.	A	B	C
----------	---	---	---

BC-50	.515"	.543"	1.6"
BC-51	.515"	.543"	1.0"
BC-52	.515"	.543"	1.6"
BC-54	.515"	.543"	2.4"

### SERIES

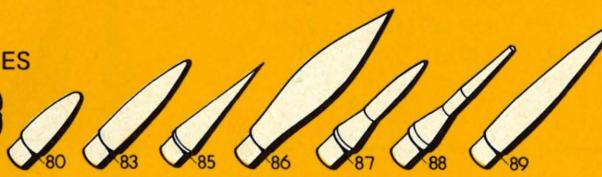
# 7



BC-70	.715"	.759"	1.6"
BC-71	.715"	.759"	1.1"
BC-72	.715"	.759"	1.9"
BC-74	.715"	.759"	3.5"
BC-76	.715"	.759"	3.1"
BC-78	.715"	.759"	3.3"
BC-79	.715"	.759"	3.6"

### SERIES

# 8



BC-80	.865"	.908"	2.1"
BC-83	.865"	.908"	3.2"
BC-85	.865"	.908"	3.2"
BC-86	.865"	1.18"	6.2"
BC-87	.865"	.908"	3.3"
BC-88	.865"	.908"	3.8"
BC-89	.865"	.908"	4.8"

### SERIES

# 10



BC-101	1.00"	1.04"	2.0"
BC-103	1.00"	1.04"	3.9"
BC-105	1.00"	1.04"	4.1"
BC-107	1.00"	1.04"	5.3"
BC-108	1.00"	1.04"	3.8"
BC-109	1.00"	1.34"	6.3"

### SERIES

# 13



BC-130	1.30"	1.34"	1.9"
BC-132	1.30"	1.34"	2.9"
BC-135	1.30"	1.34"	3.9"

### SERIES

# 16



BC-160	1.60"	1.64"	2.5"
BC-162	1.60"	1.64"	3.4"
BC-164	1.60"	1.64"	3.3"

### SERIES

# 20



BC-200	2.00"	2.04"	2.5"
BC-204	2.00"	2.04"	4.5"

# TOP QUALITY NOSE CONES

Net Wt. Ship.Wt. PRICE

.03 oz	1 oz	25¢
.02 oz	1 oz	25¢
.03 oz	1 oz	30¢
.04 oz	2 oz	40¢

.04 oz	1 oz	30¢
.03 oz	1 oz	25¢
.04 oz	1 oz	35¢
.07 oz	2 oz	45¢
.06 oz	2 oz	40¢
.06 oz	2 oz	45¢
.06 oz	2 oz	40¢

.09 oz	2 oz	45¢
.15 oz	3 oz	55¢
.12 oz	4 oz	55¢
.36 oz	6 oz	85¢
.12 oz	4 oz	55¢
.12 oz	4 oz	65¢
.20 oz	6 oz	70¢

.14 oz	2 oz	45¢
.17 oz	3 oz	65¢
.16 oz	4 oz	65¢
.22 oz	4 oz	85¢
.15 oz	5 oz	70¢
.50 oz	6 oz	95¢

.18 oz	4 oz	75¢
.25 oz	5 oz	80¢
.30 oz	6 oz	90¢

.20 oz	4 oz	75¢
.22 oz	6 oz	90¢
.20 oz	5 oz	75¢

.38 oz	5 oz	\$ 1.10
.65 oz	6 oz	\$ 1.40

## NEW! COLORFUL PLASTIC

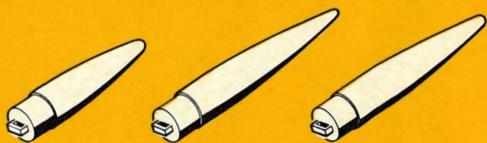
### PLASTIC NOSE CONES

A new break-through from the research laboratories of CENTURI. Precision molded in bright solid colors. Plastic base snaps into Nose Cone and contains a built-in lug for attaching the shock cord. Use hollow nose cone for Payload compartment.



#### SERIES

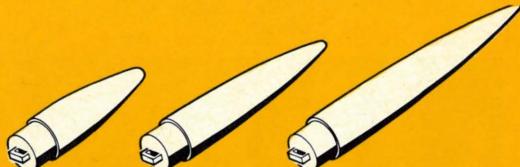
**7**



CAT. NO.	A	B	C	Net Wt.	Ship. Wt.	PRICE
PNC-73	.715"	.759"	2.3"	.14 oz	3 oz	30¢
PNC-74	.715"	.759"	3.4"	.20 oz	4 oz	40¢
PNC-76	.715"	.759"	3.0"	.19 oz	4 oz	40¢

#### SERIES

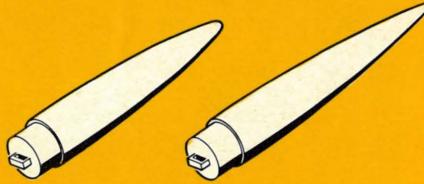
**8**



CAT. NO.	A	B	C	Net Wt.	Ship. Wt.	PRICE
PNC-80	.865"	.908"	2.0"	.15 oz	3 oz	40¢
PNC-83	.865"	.908"	3.3"	.24 oz	4 oz	50¢
PNC-89	.865"	.908"	4.6"	.29 oz	5 oz	60¢

#### SERIES

**10**



CAT. NO.	A	B	C	Net Wt.	Ship. Wt.	PRICE
PNC-103	1.00"	1.04"	4.1"	.30 oz	6 oz	65¢
PNC-106	1.00"	1.04"	4.5"	.33 oz	6 oz	75¢



Centuri

COUPLERS,

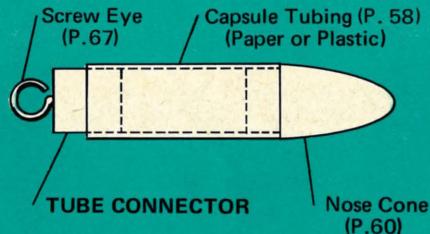
Parts needed for STAGING, PAYLOAD CAPSULES

## TUBE CONNECTORS



Featherweight round balsa plugs for connecting payload sections to main body tubes. Also useful for connecting body tubes of like diameter or wherever a solid blockage is desired. \*Formerly called "Solid Bulkheads".

## TYPICAL PAYLOAD CAPSULE DESIGN

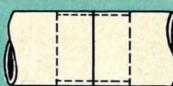


## TUBING COUPLERS

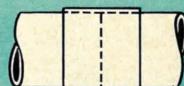


Lightweight, rigid fiber tube sections useful for connecting body tubes of same diameter, multi-stage couplings, and body tube cutting guides. Telescopes snuggly inside the tube sizes listed below.

## COUPLER APPLICATIONS



Standard Tubing Coupler Usage



Part No. HTC-7B  
Is Outside Coupler

SERIES	Cat. No.	O.D.	Length	Net Wt.	Ship. Wt.	Each
--------	----------	------	--------	---------	-----------	------

5	BTC-5	.515"	%"	.010 oz	1 oz	25¢
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7	BTC-7	.715"	1"	.025	1 oz	30¢
---	-------	-------	----	------	------	-----

8	BTC-8	.865"	1"	.085	2 oz	35¢
---	-------	-------	----	------	------	-----

10	BTC-10	1.00"	1 1/4"	.095	2 oz	40¢
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13	BTC-13	1.30"	1 1/2"	.140	3 oz	45¢
----	--------	-------	--------	------	------	-----

16	BTC-16	1.60"	1 3/4"	.185	3 oz	50¢
----	--------	-------	--------	------	------	-----

20	BTC-20	2.00"	1 3/4"	.288	4 oz	65¢
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Cat. No.	O.D.	Length	Net Wt.	Ship. Wt.	Each
----------	------	--------	---------	-----------	------

HTC-5	.513"	3/4"	.020 oz	1 oz	10¢
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HTC-7A	.713"	1.0"	.023	1 oz	10¢
HTC-7D *	.800"	1.0"	.025	1 oz	15¢

\*Slips over outside of #7 tube  
has Ported Relief Holes

HTC-8	.863"	1.0"	.030	1 oz	10¢
-------	-------	------	------	------	-----

HTC-10	1.00"	1.0"	.035	2 oz	15¢
--------	-------	------	------	------	-----

HTC-13	1.30"	1.5"	.072	2 oz	15¢
--------	-------	------	------	------	-----

HTC-16	1.597"	1.75"	.110	3 oz	20¢
--------	--------	-------	------	------	-----

HTC-20	1.998"	1.75"	.136	4 oz	20¢
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# CONNECTORS & REDUCERS

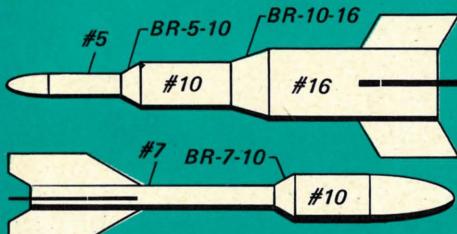
## & CONNECTING DIFFERENT SIZED BODY TUBES

### BALSA REDUCERS



Use these lightweight balsa adapters for connecting different sized body tubes. Especially useful for adapting a large diameter payload capsule to a small diameter booster or vice versa. Each end actually machined for snug fit joining of tubes. Shipping Wt. 4 oz each.

#### TYPICAL REDUCER APPLICATIONS



Cat. No.	Adapts 'A' to 'B'	Length 'C'	Net Wt.	Each
BR-5-7	#5 to #7	.50"	.07 oz	30¢
BR-5-8	#5 to #8	.50"	.10 oz	35¢
BR-5-10	#5 to #10	.75"	.11 oz	35¢
BR-7-8	#7 to #8	.50"	.10 oz	35¢
BR-7-10	#7 to #10	.75"	.12 oz	35¢
BR-7-13	#7 to #13	1.50"	.18 oz	45¢
BR-7-16	#7 to #16	2.00"	.36 oz	60¢
BR-8-10	#8 to #10	.50"	.14 oz	40¢
BR-8-13	#8 to #13	1.70"	.26 oz	55¢
BR-8-16	#8 to #16	1.50"	.30 oz	60¢
BR-10-13	#10 to #13	.75"	.18 oz	55¢
BR-10-16	#10 to #16	1.50"	.32 oz	60¢
BR-13-16	#13 to #16	.75"	.24 oz	60¢

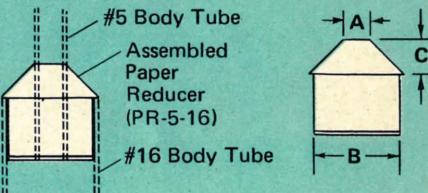
For Larger Tube Sizes, Use Paper Reducers

### NEW!



Used to connect body tubes of different diameters. Hollow opening thru center allows passage of ejection gases. Extremely lightweight, these all fiber reducers are easy-to-assemble with glue. Includes base tube coupler, two centering discs, and adapter shroud - plus complete instructions. Shipping weight 3 ounces each.

#### TYPICAL ASSEMBLY



Cat. No.	Connects 'A' to 'B'	Length 'C'	Net Wt.	Each
PR-5-10	#5 to #10	1.2"	.12 oz	25¢
PR-5-13	#5 to #13	1.8"	.18 oz	25¢
PR-5-16	#5 to #16	2.5"	.24 oz	30¢
PR-7-13	#7 to #13	1.3"	.18 oz	25¢
PR-7-16	#7 to #16	2.0"	.24 oz	30¢
PR-7-20	#7 to #20	3.0"	.29 oz	35¢
PR-8-13	#8 to #13	1.0"	.18 oz	25¢
PR-8-16	#8 to #16	1.7"	.24 oz	30¢
PR-8-20	#8 to #20	2.7"	.29 oz	35¢
PR-10-16	#10 to #16	1.4"	.23 oz	30¢
PR-10-20	#10 to #20	2.3"	.28 oz	35¢
PR-13-16	#13 to #16	0.8"	.22 oz	30¢
PR-13-20	#13 to #20	1.8"	.27 oz	35¢
PR-16-20	#16 to #20	1.0"	.26 oz	35¢

For Larger Tube Sizes, Use Paper Reducers

Always look to Centuri for quality parts!

Centuri

## ENGINE MOUNTS

TO CENTER AND HOLD THE MODEL

8  
TUBE10  
TUBE10  
TUBE13  
TUBE16  
TUBE20  
TUBE

EM-8



EM-10A



EM-10



EM-13



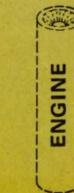
EM-16



EM-20

**ENGINE MOUNTS** center and hold the rocket engine in the body tube. Engine pushes against thrust ring as it develops thrust. Simply assemble, slip in body tube, and glue. Mount includes centering rings, engine mount tube, and thrust ring plus sleeve tube (EM-10 thru EM-20). Shipping Weight 4 ounces each.

CAT. NO.	TUBE SERIES	NET WT.	EACH
EM-8	8	.16 oz.	30¢
EM-10A	10	.22 oz.	30¢
EM-10	10	.15 oz.	35¢
EM-13	13	.20 oz.	35¢
EM-16	16	.24 oz.	35¢
EM-20	20	.28 oz.	40¢



Centuri

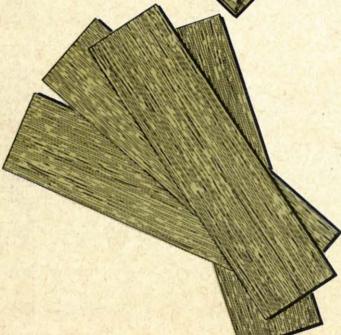
## STABILIZER

TO PROVIDE AERODYNAMIC

## BALSA FIN CUT-OUTS

Select grade balsa sheets 3/32" x 3" x 12" pre-marked with outlines of proven fin designs. Easy to cut out and glue to rocket body. Excellent fin designs for most models using the #7 thru #16 Body Tubes. Shipping weight 4 ounces each.

CAT. NO.	DESCRIPTION	PRICE
BFC-1	3 sets of 3 small fins	30¢
BFC-2	2 sets of 3 large fins	30¢
BFC-3	2 sets of 4 medium fins	30¢

EASY  
TO MAKE!

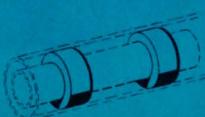
## BALSA FIN MATERIAL

Top grade smooth sanded balsa sheets. Best material for stabilizer fins -- extremely lightweight and rigid. Simply cut fin pattern out of stiff paper, lay onto balsa sheet, trace around pattern, then cut out with sharp modeling knife. Shipping Weight 6 ounces per sheet.

CAT. NO.	THICKNESS	WIDTH	LENGTH	PRICE
BFM-8	1/16"	3"	12"	3 sheets for 55¢
BFM-10	3/32"	3"	12"	3 sheets for 60¢
BFM-12	1/8"	3"	12"	3 sheets for 70¢
BFM-14	3/16"	3"	12"	3 sheets for 80¢

# AND ACCESSORIES

## ROCKET ENGINE INSIDE THE BODY TUBE



### SERIES #7 THRUST RINGS

Featherweight fiber ring (3/8" long) which acts as forward engine stop when glued into any #7 Series Body Tube. Ship wt. 1 oz.



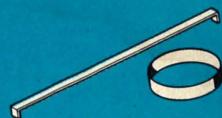
### SERIES #8 CENTERING RINGS

Featherweight fiber ring which centers a #7 tube inside a #8 tube. Especially useful for making engine mounts for #8 Rocket bodies. (See EM-8 on opposite page). Ship wt. 2 oz.



### SERIES #10 CENTERING RINGS

Lightweight fiber ring which centers a #7 Tube inside a #10 Tube. Especially useful for #10 Rocket Bodies (See EM-10A on opposite page). Ship Wt. 2 oz.



### ENGINE LOCKS

Just snap engine in — holds the engine firmly in place during flight. Engine lock is plated hardened steel. Includes mylar ring which slips over engine tube to hold lock in place. Use on rockets with #10, 13, 16 or 20 body tube sizes. Ship Wt. 1 oz.

TR-7

Pkg. of 6 for 30¢

CR-8

Pkg. of 6 for 35¢

CR-10

Pkg. of 6 for 35¢

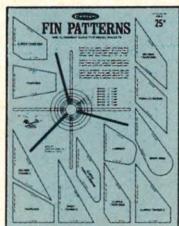
EL-1

Pkg. of 3 for 35¢

# FINS AND MATERIALS

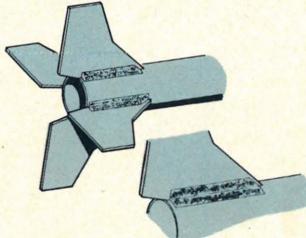
## STABILITY FOR YOUR MODEL ROCKETS

### FIN PATTERN SHEET



Twelve popular new fin patterns printed on heavy tag paper — all tried and proven. Simply cut out pattern, transfer onto balsa sheet by tracing around with ball point pen. Both 3 and 4 fin alignment guides included. Ship. Wt. 4 oz.

### FIN-BODY REINFORCING



Ultra-thin, lightweight, strong SILRAY material for strengthening fin-to-body glue joints. Keeps fins from "stripping off" on B14 and cluster powered rockets. Apply easily with white glue or clear dope. Big sheet 12"x12". Ship wt. 2 oz.

### FIN GUIDE PAK

#### PRE-CUT FIN TEMPLATES



SIMPLY TRACE ON FIN MATERIAL AND CUT OUT

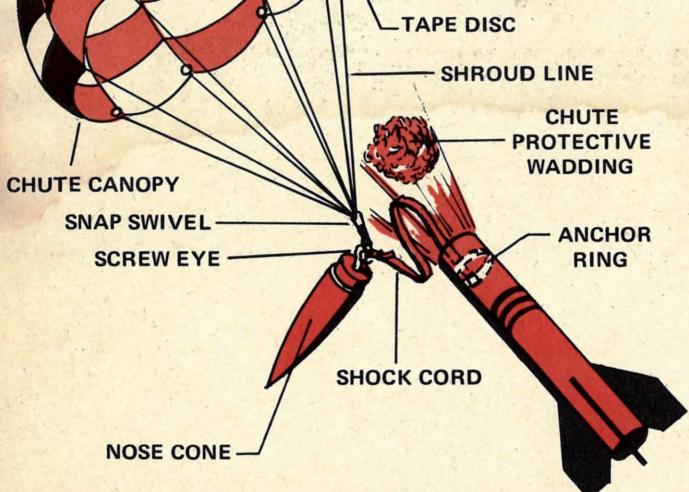
Fifteen popular and proven Fin Templates die cut full-size from heavy index stock. Each template is imprinted with fin name. Comes with fin positioning guide and fin making instructions. Ship. Weight 5 ounces.

Centuri

## RECOVERY

BRING YOUR ROCKETS BACK

## CHUTE



Includes Shroud Lines, Tape Discs		
CAT. NO.	CHUTE SIZE	COLOR PATTERN
CP-12		Red & White
CP-12A	12"	Yellow & Black
CP-12B		Blue & White
CP-16		Red & White
CP-16A	16"	Yellow & Black
CP-16B		Red & Yellow
CP-20		Red & White
CP-20A	20"	Yellow & Black
CP-24		Red & White
CP-24A	24"	Yellow & Black



## PLASTIC DRAG STREAMERS

Good recovery for lightweight rockets weighing up to one ounce. Bright fluorescent orange plastic flagging 1-1/8" wide x 36" long. Net wt. .09 oz. Includes tape discs plus instructions. Ship wt. 2 oz.

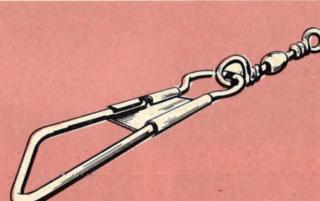
RS-20 Pkg. of 3 for 35¢



## TAPE DISCS

Sheet of 35 pressure sensitive discs used to fasten shroud lines securely to plastic parachutes or streamers. Only  $\frac{1}{2}$ " in diameter, discs are extremely lightweight and very low bulk. Shipping wt. 1 oz.

TD-35 per sheet - 25¢



## SNAP SWIVELS

Tiny, lightweight hooks for quick snap-on attachment of parachute to rocket. Keeps shroud lines from twisting during recovery and makes it easy to switch chutes from rocket to rocket. Shipping wt. 1 oz.

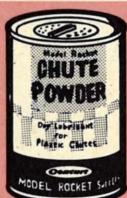
SW-12 Pkg. of 6 for 25¢



## CHUTE WADDING

Lightweight flameproof cotton which protects parachutes or streamers from the engine's hot ejection gases. Pack between engine and chute. Directions included. Enough for up to 30 flights. Ship wt. 6 oz.

PW-19 Lg. Package 40¢



## PARACHUTE POWDER

Fine powder, sprinkled on parachute during folding acts as lubricant to help chute slide out of body tube. Also creates dust cloud when chute opens to aid in tracking. Comes in 2 oz. shaker can. Ship. wt. 6 oz.

PDR-17 75¢



## SHROUD LINE

Strong, glazed finish, lightweight cord (only .022" dia.) Perfect for shroud lines on custom parachutes. Sufficient line for 20 to 30 parachutes. Choice of red or black, please specify color. Ship wt. 4 oz.

SL-70 72 yd. spool 30¢

# DEVICES AND ACCESSORIES

TO EARTH SAFELY WITH THESE PROVEN DEVICES

## PAKS

and Complete Instructions.

REC. ROCKET WEIGHT	NET WT.	PRICE EACH
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3 oz. .085 oz 25¢

6 oz. .136 oz 30¢

9 oz. .215 oz 40¢

12 oz. .295 oz 50¢



### SCREW EYES

For easy attachment of recovery system to nose cone or payload capsule. Extremely lightweight - bright chrome plated. Two sizes available.

SE-10 Pkg. of 6 for 20¢

SE-12 Pkg. of 6 for 20¢



### CHROME MYLAR PARACHUTE MATERIAL

Square yard of hi visibility chrome mylar. (Only .0005 inch thick.) Complete instructions for making your own 4, 6, or 8 sided parachutes up to 36" across, plus "How to fold & pack chutes". Ship wt. 4 oz.

MCM-36 sq. yd. 95¢

### EJECTION BAFFLES

Another new idea from Centuri, these ejection baffles will eliminate the need for parachute wadding in your large diameter rockets. The precisely engineered spacing of the relief ports at either end of the baffles trap and dissipate heat without reducing the "ejection pressure" of the gases. As a result, the parachute is protected from heat—every time—with no additional protective wadding required. These ejection baffles are permanently installed and need never be replaced.

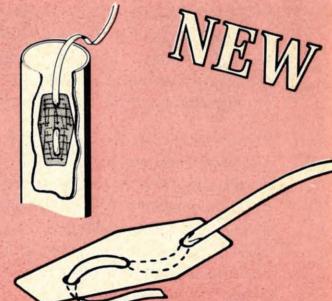
*Pat. Pending*



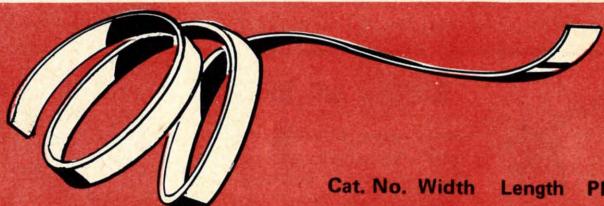
Cat. No.	Fits Tube Size	PRICE
EB-13	#13	35¢
EB-16	#16	40¢
EB-20	#20	50¢

### SHOCK CORD FASTENERS

These scientifically designed shock cord fasteners will anchor the shock cord easily and permanently into any size body tube. The die cut fasteners are made of a special heat resistant foil woven with nylon fibers for extremely high strength. Permanent, pressure-sensitive backing simplifies attachment to the inside of the body tube. Won't pull out — no messy gluing — fits all body tubes from #7 through #20.



SCF-1 Pkg. of 6 for 30¢



### SHOCK CORD

Strong, live action elastic cord which connects the recovery system to the rocket body and absorbs the shock of parachute opening. Perfect for all chute recovery "birds" using any  $\frac{1}{4}$ A thru C type engines.

Cat. No.	Width	Length	PRICE
For light to medium wt. rockets (0.5 to 2.0 oz.)			
SC-18	1/8"	16"	3/25¢
SC-18A	1/8"	12 ft. roll	50¢ ea.
For medium to heavy wt. rockets (2 to 6 oz.)			
SC-20	1/4"	16"	3/35¢
SC-20A	1/4"	12 ft. roll	75¢ ea.



# PAINTS, GLUES

GIVE YOUR MODELS A



1 2 3 4 5

Wind tunnel tests have shown that the surface finish of rockets can affect their altitude capabilities by as much as 60%. Therefore, in order to achieve maximum altitude flights, it is advisable to give your model rockets a smooth surface finish. In summary, the smoother the surface, the higher the altitude.

#### STEPS TO ACHIEVING A SMOOTH AERODYNAMIC FINISH

**PREPARE SURFACE** — Apply fillercoat to all balsa surfaces. Sand smooth and apply more fillercoat. Repeat process until balsa grains are completely filled. A final coating of clear dope gives a high-gloss painting base.

**PAINT SURFACE** — Spray lacquers or lacquered enamels are best for model rockets because of their highly evaporative solvents. Regular enamels are relatively heavy and should be used sparingly. Apply an even coat of paint and allow to dry completely. Fluorescent colors require a base coat of either flat or gloss white.

**FINISH SURFACE** — For that expert touch on your display models, lightly rub the entire painted surface with compound, wipe clean, and apply gloss wax. Now apply decal markings. Do not apply compound or wax to fluorescent colors.

#### BADGER AIR BRUSH



Spray dope, enamels, and lacquers with professional results. Save money in the long run over ordinary spray cans of paint, with an even better finish. Includes Paint Spray Air Brush, 5 ft. Vinyl Hose, Air Valve, Mixing Jar, instructions, and plastic case. Propell not included.

AB-250 (Ship. Wt. 1 lb.) \$6.95

**"PROPEL" Aerosol Propellant** (15 oz. can)  
ABP-15 (Ship. Wt. 2 lbs.) \$2.25

**1** **BALSA FILLERCOAT** The first step to getting that smooth, glossy finish on your rockets. Fills in and seals balsa grain in fins and nose cones before applying paint. Simply brush on, allow to dry, and sand lightly with #FM-20 sandpaper (2 or more coats recommended). Shipping Weight 4 oz.

MF-70 One ounce bottle 30¢  
DT-43 1 oz. Thinner & Brush Cleaner 25¢

**2** **PLASTIC BALSA BODY PUTTY** For streamlining and strengthening fillets over fin-body joints. Fills holes or dents in body tubes, fins, and nose cones. Fast drying and sands well. Ship. Wt. 4 oz.

MF-10 1½ ounce tube 40¢

**3** **SUPERFINE SANDPAPER** For that mirror-gloss finish on your rockets. Ideal for finish sanding on balsa fins, nose cones, and reductions. Preferred by "professional" model builders. Outlasts most other sandpapers. Six sheet pack includes 2 sheets of #600 grit, 2 - #400, 1 - #320 and 1 - #280, measuring 3" x 3½". Shipping Weight 4 oz.

FM-20 6 Sheet Assorted Pack 30¢ each

**4** **SUPERBOND GLUE** The most perfect glue ever developed for model rockets. Holds fins on stronger and dries faster than white glue. Unbelievable strength. Use on balsa wood, paper, and fabric. Sands extremely well. Comes in handy plastic squeeze bottle with spout. Shipping Weight 3 oz.

GL-100 1½ oz. squeeze bottle 40¢

**5** **MASKING TAPE** For stripping and color marking your models. Highly flexible for curved stripes. Seals tightly for clean edges — strips off clean. Use to friction-fit engines into rockets. 12 foot long rolls. Shipping Weight 1 oz. per roll.

MT-25 1/4" wide x 144" roll 25¢ per roll  
MT-50 1/2" wide x 144" roll 25¢ per roll

# & FINISHING MATERIALS

"PROFESSIONAL FINISH" WITH THESE SUPPLIES



**6 WHITE GLUE** Perfect for model rockets. Quick setting with tremendous holding power. Ideal for assembling and attaching fins, engine mounts, paper reducers, etc. Adheres to paper, balsa wood, and fabric. Dries clear. Comes in handy, unbreakable plastic tube with applicator spout. Shipping Wt. 5 oz.

GL-40 2 ounce bottle 40¢

**7 PAINT BRUSHES** Just right for applying filler-coat and brush-on dope to your model rockets. Top quality camel hair brushes mounted in metal ferrules with wood handles. Shipping Weight 2 oz. each.

PB-20 1/4" wide brush 30¢  
PB-25 1/2" wide brush 45¢

**8 FLAMEPROOFING SOLUTION** Prevents burning of tail fins, engine mounts, and other parts exposed to hot exhaust gases. Brush on full strength, just like paint. Especially useful for swept fins. Comes in handy plastic bottle. Shipping Weight 5 oz.

FP-13 2 ounce bottle 50¢

**9 FLUORESCENT SPRAY PAINT** High visibility, fast drying, lacquer type paint in handy spray can. Trackers delight!! Easy to spot at high altitudes. Most popular model rocket finish. Apply over glossy white base coat to get full fluorescent effect. Specify color. Shipping Wt. 15 oz. Available in:

Cerise (Pink)	Yellow Orange
Red Orange	Green

FP-10 6 oz. spray can \$1.55 each

**10 LACQUERIZED ENAMEL SPRAY** Perfect finish for model rockets. Lightweight and dries in minutes to a smooth glossy finish. Use glossy white under fluorescent colors. Available in following colors. Please specify color. Shipping Weight 15 oz.

Bright Silver	Flat Black	Flat White	Cherry Red
Crystal Clear	Gloss Black	Gloss White	Orange

FP-2 6 oz. spray can \$1.20 each

**11 GARNET SANDPAPER** For shaping and sanding fins, nose cones, engine mounts, reducers, etc. Fast cutting and long lasting. Six sheets 4" x 5" in assorted grades — extra fine, fine, and medium.

MF-9	6 Sheets Extra Fine #220	15¢
MF-11	6 Sheets Fine #150	15¢
MF-13	6 Sheets Medium #120	15¢
MF-15	12 Sheets Assorted Grades	25¢

**12 BRUSH-ON DOPE** Perfect for model rockets because it's lightweight and fast drying. Apply over balsa nose cones and fins "sealed" first with #MF-70 BALSA FILLERCOAT. No surface preparation needed on body tubes. Dries to a smooth glossy finish. Available in following colors — please specify color when ordering. Shipping Weight 4 oz.

Red White	Orange Blue	Silver Black	Yellow Clear
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FP-40 1 ounce bottle 25¢

**13 RUBBING COMPOUND** Used by "professional" model builders to rub out "orange peel" and "overspray" after final paint job. Apply sparingly and rub on lightly with a dry cloth. Wipe off and follow with a coat of gloss wax #GW-60. Shipping Wt. 6 oz.

RBC-50 2 1/2 ounce jar 85¢

**14 GLOSS WAX** For an ultra-gloss finish that reduces air friction and cuts down on drag. Apply to any painted surface with a soft cloth, let dry, then polish lightly with dry cloth to obtain bright shining finish.

GW-60 2 1/2 ounce jar 85¢

**15 ROCKET PRO/STRIPES** Pressure sensitive trimming tape. Create brilliant colored stripes, bands, and roll patterns on your rockets. Easy and fast to apply. Available in 1/8" and 1/16" wide rolls. 100" on 1/8" rolls and 125" on 1/16" rolls. Please specify both color and width. Colors available are:

Red Black	White Copper	Fluorescent Red Fluorescent Cerise	Metallic Chrome Metallic Gold
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TT-9 30¢ per roll

**Centuri**

# DECORATIVE

**GIVE YOUR MODEL THAT "PROFESSIONAL"**



**#7** *Centuri* ROLL PATTERNS Add that touch of realism to your models. Makes 'em look like the real ones at Cape Kennedy. Big 4" x 10" sheet includes five roll patterns, 4 girth bands, plus U.S. markings. Designed to perfectly fit Centuri's #7 body tubes. Available in Red or Black on clear. Specify color.

**DC-30** 35¢ each

**#8** *Century* ROLL PATTERNS Just like the paint patterns used on the big missiles to indicate whether it is "rolling" in flight. Big 4" x 10" sheet contains 5 roll patterns, 3 girth bands, and U.S. markings. Designed to fit around a #8 body tube. Available in Red or Black on a clear background.

**DC-32** 35¢ each

**#10** *Centuri* ROLL PATTERNS Terrific for all models. Decorate your rockets just like the big ones at the "Cape". Giant 4" x 10" sheet containing four roll patterns and three girth bands. Just the right size for #10 Centuri Body Tubes. See models in catalog for roll patterns in use. Available in Red or Black on clear. Specify color when ordering.

**DC-31** **35¢ each**

**MILITARY INSIGNIAS** Dress up your models with these sharp looking military symbols and insignias. Beautifully printed in brilliant red, white and black colors on clear. Big 3 1/2" x 9" sheet. Cut apart, easy-to-apply.

**DC-3** 50¢ each

**MISSILE MARKINGS** A must for every rocketeer. Use these colorful markings on all your model rockets. Identify Center of Pressure, Center of Gravity, stages, payload capsules, plus hatch covers and signs just like you see at the "Cape". Printed in brilliant red, white, and black on clear. Large 3½" x 9" sheet. Cut apart, easy-to-apply.

PC-4 50¢ each

**CHROME & GOLD PLATED MYLAR** Large 4" x 10" sheets you can cut apart to form bright circular bands or roll patterns. Or, you can completely chrome or gold plate your entire model. Pressure sensitive backing sticks to any surface. Extremely lightweight.

**DC-33** Chrome Plated 50¢ each  
**DC-34** Gold Plated 50¢ each



# MATERIALS AND DECALS

## FINISH WITH REALISTIC **Centuri** MARKINGS

**U.S. FLAG DECALS** 17 Beautiful red, white & blue miniature American Flags on large 4" x 10" sheet. Perfect scale dimensioned - 3/4" thru 1 1/4" long. Also includes "USA" and "UNITED STATES" symbols plus USA wrap around banners. Use these terrific decals to add "finished" touch to models.

DC-35                    50¢ each

**3/16" SQUARE CHECKERBOARDS** Large 4" x 10" sheet of glossy, colorful 3/16" checks on clear background. Adds color contrast to your models to help in tracking. Available in Red, Black, Gold, and White. Specify color.

DC-25                    30¢ each

**3/8" SQUARE CHECKERBOARDS** Large 4" x 10" sheet of glossy, colorful, big 3/8" checks on clear background. Ideal for the larger MINI-MAX powered models. Available in Red, Black, Gold, & White. Specify color.

DC-26                    30¢ each

**COLOR STRIPES** Make vertical stripes, girth bands, and custom roll patterns on your rockets. Big 4" x 10" sheet containing 10 stripes ranging in width from 1/32" to 1/2". Available in Red, Black or Yellow on clear background. Specify color you desire when ordering.

DC-29                    30¢ each

**3/8" LETTER DECALS** Easy to apply! Use for insignia markings, model names, etc. Includes 68 letter characters plus 3 "NAR" symbols in NASA style lettering on 3 1/2" x 6" sheet. Available in red or black on clear.

DC-7                    25¢ each

**3/8" NUMBER DECALS** Perfect NASA style 3/8" high numbers. Use for NAR numbers, code markings, identification numbers, etc. Includes 6 number sets 0 thru 9, plus "NAR#". Available in red or black on clear.

DC-8                    25¢ each

**1/4" LETTERS & NUMERALS** Perfect 1/4" high NASA style figures for all your models on large 3 1/2" x 6" sheet. Use for rocket markings, club numbers, field box I.D., etc. Available in red or black on clear. Easy to cut out and apply to any surface.

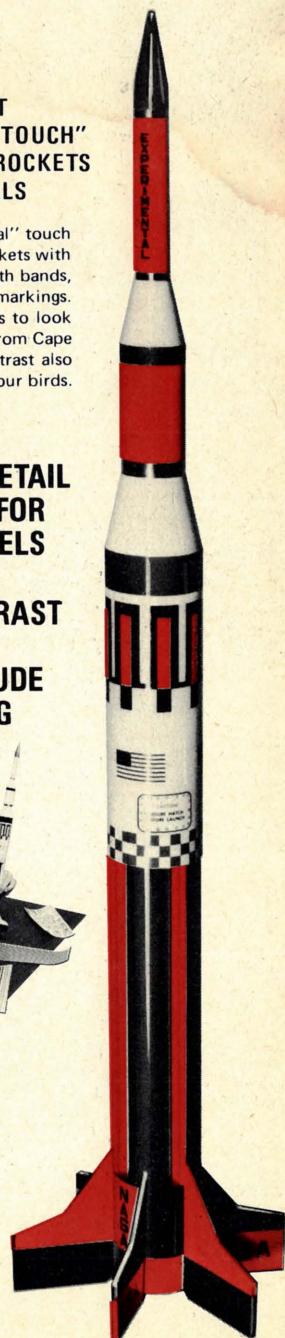
DC-1                    25¢ each

ADD THAT  
"PROFESSIONAL TOUCH"  
DRESS UP YOUR ROCKETS  
WITH DECALS

Add that "professional" touch of realism to your rockets with roll patterns, flags, girth bands, checks and missile markings. Dress up your models to look like the "big ones" from Cape Kennedy. Color contrast also helps in "tracking" your birds.

**AUTHENTIC DETAIL  
MARKINGS FOR  
SCALE MODELS**

**COLOR CONTRAST  
FOR  
HIGH-ALTITUDE  
TRACKING**



Centuri

# ELECTRICAL

## TO BUILD YOUR OWN



### ROCKET LAUNCHING BATTERIES

Made by a leading American manufacturer and tested to special high amperage ratings for model rocket launching. Two of these batteries are required for use in the new Centuri Servo-Launch. Shipping Wt. 5 oz. each.

SPB-1

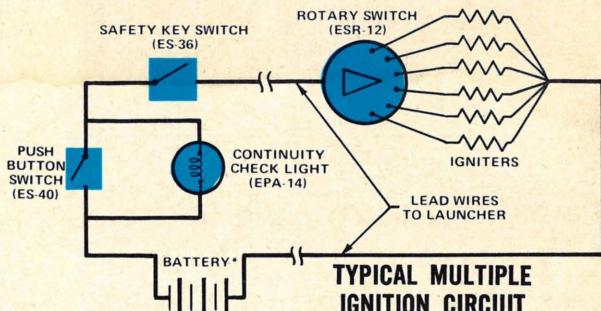
35¢ each



### IGNITER-CLIP ASSEMBLY

Just like the ones used on Centuri's LIA-50 and LIA-77 launchers. Used to carry electrical current thru the igniter. Simply connect ring terminal to the business end of your firing line and your homemade launcher is set up for electrical ignition. Includes micro-clips.

ECA-44 85¢ per set



### MICRO-CLIPS

The very best clips for connecting ignition leads to the rocket engine igniter. Spring grip the smallest nichrome wires. Plated with highly conductive cadmium. Only 1-1/8" long. Ship. Wt. 1 ounce.

EMC-34

2 for 25¢



### HEAVY DUTY BATTERY CLIPS

Great for connecting up firing circuit to car battery. Jaw opens 1-1/8" to span large terminal posts. 3" overall length. Bright copper plated steel with vinyl handle insulators in red and black.

Ship. Wt. 6 ounces.

EMC-46 2 for 90¢



### NICHROME IGNITER WIRE

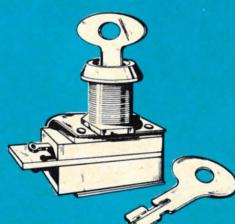
Nickel - chromium resistance wire to make igniter for model rocket engines. Glows red hot when connected to a battery current source. Complete instructions for its use included with all Centuri engines. About 2" required for each launch. Shipping weight 2 ounces.

Cat. No. Size Length Price

EW-32 #32 48" .25

EW-32A #32 180" .50

EW-32B #32 1200" 2.85



### SAFETY KEY SWITCH

Add that professional touch and extra safety to your ignition system. Safety key interlock prevents unintentional firing. Key must be inserted and turned to close circuit. Mounts in 1/2" hole. Comes with key. Ship Wt. 6 ozs.

ES-36 \$2.75

ES-36K Extra Key 25¢

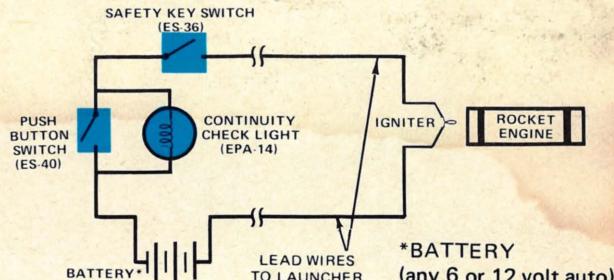
# SUPPLIES & EQUIPMENT

## MODEL ROCKET IGNITION SYSTEM

### LAUNCH MODEL ROCKETS BY ELECTRICAL MEANS ONLY

Both for safety's sake and for that "professional approach", all model rockets should be ignited ELECTRICALLY. Shown below are all the parts necessary to build either the "Single Ignition Circuit" or the Multiple Ignition Circuit" shown here.

Complete plans for Club Launcher & Panel in Centuri's "American Rocketeer" Vol. 3 No. 1 (available 25¢).



TYPICAL SINGLE IGNITION CIRCUIT

\*BATTERY  
(any 6 or 12 volt auto)  
(Ray-O-Vac No. 918)  
(Eveready No. 731)  
(Burgess No. TW1)



### SOLDERLESS TERMINALS

Attach to ends of firing lines, igniter clip-leads, etc. to make fast and easy electrical connections. Simply slip over bare wire end and crimp into place with pliers.  $\frac{1}{2}$ " long with  $\frac{3}{8}$ " ring hole. Ship Wt. 1 oz.

EST-20 Pkg. of 6 for 25¢



### ZIP FIRING CABLE

Perfect for your model rocket electrical ignition system. Connect it from your firing switch out to the launcher. Flexible No. 18 two-conductor insulated cord. Ship Wt. 6 ozs.

EZP-12 12 ft. roll 85¢



### PUSH BUTTON SWITCH

Perfect for firing switch in any ignition circuit. Bright red plastic button. Momentary contact - spring loaded type (normally open). Mounts in  $\frac{3}{8}$ " hole. Ship Wt. 3 ozs.

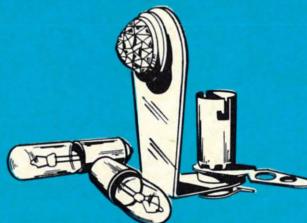
ES-40 90¢ each



### ROTARY SWITCH

Selector switch for multiple type club launchers with up to twelve launch rods. Non-shorting. Mounts in  $\frac{3}{8}$ " hole. Dial Plate numbered 1-12. Mounting hardware included. Aluminum figures etched on black background. Ship wt. 6 ozs.

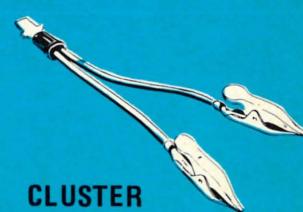
ESR-12 \$1.95



### PILOT LIGHT ASSEMBLY

Perfect for "continuity check" light or "armed" signal in your ignition circuit. Red  $\frac{3}{4}$ " convex jewel with chrome plated lens holder. Mounts in  $\frac{11}{16}$ " hole. The bulb is not included. Shipping weight 2 ounces.

EPA-14 Entire Assembly 95¢  
EPB-6 6 volt bulb 20¢  
EPB-12 12 volt bulb 20¢



### CLUSTER CLIP-WHIP

For 2, 3, or 4 engine 'cluster' birds. Attaches to one end of your launcher leads to distribute electrical current evenly between 2 - 4 engine igniters for simultaneous ignition. Includes Report TIR-52 on "Reliable Cluster Ignition" showing how to make proper hook-ups. Ship wt. 4 ozs.

ECW-1 95¢

Centuri

**MODELING TOOLS.****BUILD BETTER MODELS WITH****X-ACTO KNIFE CHEST #82**

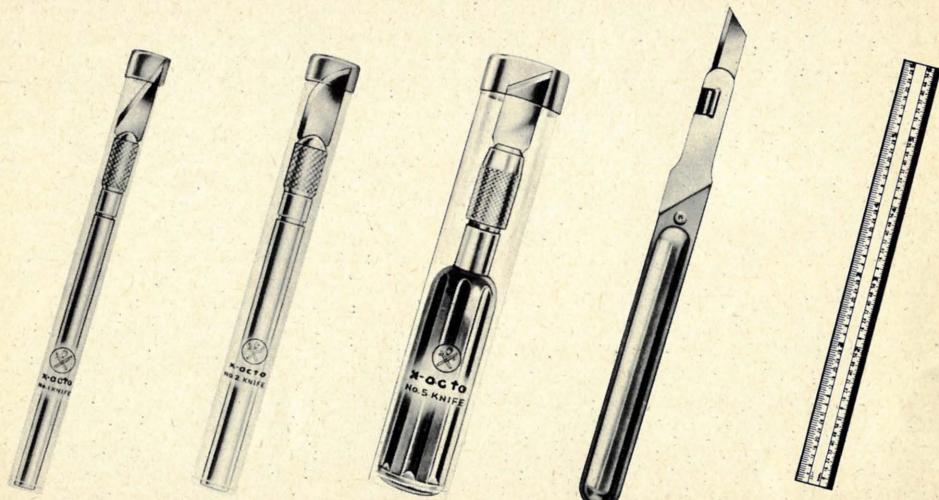
Set of three modeling knives, light, medium and heavy duty — all useful in building model rockets. Contains Nos. 1, 2, and 5 knives plus 9 assorted extra blades, packed in a handy, natural finish wood chest.

**XC-82**      (Ship. Wt. 1½ lbs.)      **\$4.95**

**X-ACTO HOBBY TOOL CHEST #86**

Contains Nos. 1, 2 & 5 knives and complete assortment of blades, gouges, routers, and punches. Also includes X-Acto planer, sander, spokeshave, balsa stripper, and steel rule — all in handsome fitted wood chest.

**XC-86**      (Ship. Wt. 2 lbs.)      **\$14.50**



**No. 1** **65¢**

Cat. No. XK-1  
Ship. Wt. 3 oz.

**No. 2** **80¢**

Cat. No. XK-2  
Ship. Wt. 4 oz.

**No. 5** **\$1.25**

Cat. No. XK-5  
Ship. Wt. 6 oz.

**No. 8** **30¢**

Cat. No. XK-8  
Ship. Wt. 3 oz.

**XR-6** **85¢**

Steel Ruler  
Ship. Wt. 3 oz.

**HELPFUL TOOLS FOR ALL**

# KNIVES AND TOOL KITS

## THE CORRECT MODELING TOOLS



### DUAL KNIFE SET

Contains one light and one medium duty knife with 5 assorted blades for each knife. Packed in a clear plastic case.

**GC-78** (Ship. Wt. 12 oz.) **\$2.50**



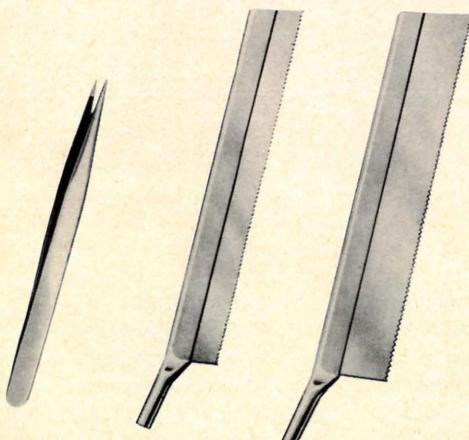
### MODEL ROCKETEERS TOOL KIT

A complete set of tools needed most by model rocketeers all in an attractive vinyl carrying case. Below is a complete list of the tools you receive:

- 1-No. 1 Knife
- 1-No. 5 Knife & Blade
- 5-XB-11 Blade
- 1-XB-34 Razor Saw
- 1-2" Wide Sanding Block
- 1-6" Steel Ruler

*You should have this complete kit!*

**XC-90** (Ship. Wt. 1 lb.) **\$5.00**



<b>XT-7</b> 30¢	<b>XB-34</b> 45¢	<b>XB-35</b> 50¢
Tweezers	3/4" Razor Saw	1" Razor Saw
Ship. Wt. 2 oz.	Ship. Wt. 3 oz.	Ship. Wt. 3 oz.
4 1/2" Blade - Fits #5 Handle		

	<b>XB-10</b> Fits No. 1 Handle 15¢ ea. 5 for 65¢
	<b>XB-11</b> Fits No. 1 Handle 15¢ ea. 5 for 65¢
	<b>XB-24</b> Fits No. 2 Handle 15¢ ea. 5 for 65¢
	<b>XB-8</b> Fits No. 8 Handle 10¢ ea. 5 for 35¢
	<b>XB-1</b> 'U' Gouge 25¢ ea.
	<b>XB-2</b> Round Router 25¢ ea.

*(XB-1 & 2 Fits No. 5 Handle  
use to hollow out nose cones)*

**YOUR MODEL BUILDING**

Centuri

## FIELD BOX SPECIAL



All these valuable materials for model "preparing" and on the spot model repairs -- packed in a good looking, sturdy metal box with three compartment tray to hold your rocket supplies -- measures 11"x5"x3½" with carrying handle & chrome snap catch. Shipping Wt. 2 lbs.

**\$9.40 Value, Complete  
SPECIAL ONLY \$6.95**

FIELD BOX (ALONE)  
Catalog No. FB-250      \$2.50

Catalog No. FBS-301  
Shipping Wt. 4 lbs.

**FIELD BOX ASSORTMENT  
CONTAINS**

1 Modeling Knife & Blade	2 Micro-Clips
5 Extra Knife Blades	1 Roll Shroud Line
1 Bottle Superbond Glue	1 Sheet Tape Discs
1 Pkg. Chute Wadding	1 Plastic Streamer
1 Can Chute Powder	1 Emery Board
12 Sheets Ass'td Sandpaper	3 Snap Swivels
1 Roll ½" Masking Tape	1 Pkg. Reinforcing Mat'l.
2 12" Parachutes	3 1/8" x 18" Shock Cords
2 16" Parachutes	3 3/16" x 18" Shock Cords
1 20" Parachute	6 Small Screw Eyes
1 150" Roll Nichrome Wire	





**Centuri**

# Sky Trak

3-DIMENSIONAL ROCKET ALTITUDE TRACKING OUTFIT

Do you really know how high your rockets go? Centuri's Sky-Trak will let you find out exactly ( $\pm 5\%$ ). Use one or two trackers. One will give you the approximate altitude; two will increase the accuracy of the  $\pm 5\%$  category. By using the Sky-Trak along with the "Altitude Computer" and the "Altitude Plotting Charts" included with each tracker, you will easily and accurately calculate the "apogee altitude" of each rocket you fly.

**SINGLE TRACKER**  
plus Altitude Computer  
and Flight Data Sheets

**\$2450**

Cat. No. ALT-1  
Ship. Wt. 8 lbs.

**2 COMPLETE TRACKERS**  
plus Altitude Computer  
and Flight Data Sheets

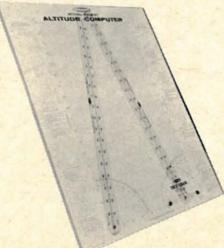
**\$4450**

Cat. No. ALT-2  
Ship. Wt. 15 lbs.

**Centuri**

## ALTITUDE COMPUTER

Using the elevation and azimuth data obtained from 1 or 2 Sky-Traks, you can compute the altitude reached by your rocket quickly and accurately—with practice, in less than 30 seconds. A big chart with sturdy plastic beam arms. Complete with Altitude Tracking Report and 10 Flight Data Sheets and instructions.



**\$300**

Cat. No. ALC-1 \$3.00

Ship. Wt. 12 oz.

**Centuri**

## FLIGHT DATA SHEETS

Maintain permanent records, including flight performance, engine data, weight, and other data, for every rocket you or your club flies. These handy DataSheets are printed on both sides and include diagrams and equations for use with the Sky-Trak 3D Tracker. Flight Data Sheets are in pads of 10, 8 1/2 x 11 size.



**35¢**

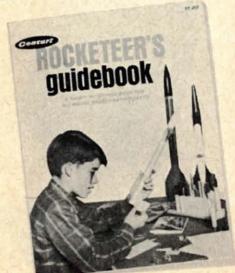
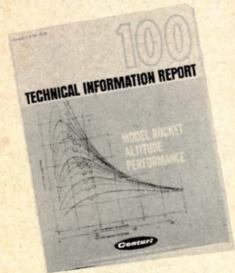
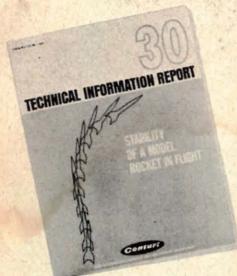
Cat. No. FDS-10 35¢

Ship. Wt. 3 oz.



# TECHNICAL REPORTS •

**DESIGNED TO HELP YOU BUILD**



## TIR-30 STABILITY OF A MODEL ROCKET IN FLIGHT

**75¢**

You've probably heard that a stable rocket flight requires that the center-of-pressure must lie behind the center-of-gravity. Well, what is center-of-pressure? What does the word "stability" really mean? Are there any simple tests to tell if a new rocket will be stable? How come rockets head into the wind instead of being blown with the wind? These and many more important questions are fully answered in TIR-30.

## TIR-33 CALCULATING THE CENTER-OF-PRESSURE OF A MODEL ROCKET

**\$1.00**

TIR-33 shows you how to calculate and locate the exact center-of-pressure so you can achieve maximum performance together with an adequate margin of stability. Helps to show if additional nose weight is necessary. Helpful in balancing scale birds with very little fin area. Fully illustrated, it includes all necessary equations; designs tips plus sample problems, along with easy-to-use graphs which eliminate most of the arithmetic steps.

## TIR-52 RELIABLE CLUSTER IGNITION

**35¢**

The technique of "clustering" model rocket engines for higher liftoff thrust is now made easy. This fully illustrated report explains the "whys" and "hows" in obtaining reliable electrical ignition of 2 or more engines in a cluster. TIR-52 shows how to select the best power source and how to wire up the igniters. Improve your "clustering" success by reading this 8 page report.

## TIR-100 MODEL ROCKET ALTITUDE PERFORMANCE

**\$1.00**

Predict the peak altitudes which will be reached by single stage rockets using 1/4A thru F type engines with easy-to-use graphs. Also more graphs for selecting the best engine delay time. No math calculations needed whatever. These graphs plus discussion sections will help you understand how engine thrust, rocket weight, and aerodynamic drag on various nose & body shapes are interrelated in their affects on performance.

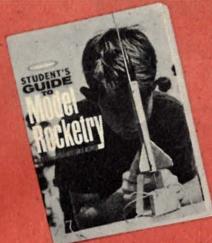
## RG-36 ROCKETEER'S GUIDEBOOK

**\$1.25**

Just the answer for the aspiring rocketeer who wants to find out for himself "what it is all about". The "Rocketeer's Guidebook" is a fact-filled, clearly-written, 36 page reference which will fill an important place in your model rocketry library as you become involved in America's fastest growing Space-age hobby.

# HANDBOOKS AND POSTERS

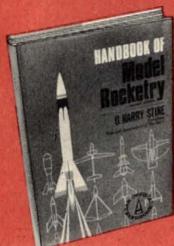
## BETTER AND HIGHER FLYING MODEL ROCKETS



### TB-10 STUDENT'S GUIDE TO MODEL ROCKETRY

**\$1.75**

Your "best guide" for a complete introduction of "model rocketry" and "rocketry" in general. Loaded with photographs and illustrations, it explains how to get started in model rocketry and how to conduct rocket research projects. See outline on page 7. 80 pages.



### BFP-108 HANDBOOK OF MODEL ROCKETRY

**\$6.95**

This book explains clearly how to design, build, launch, track, and recover model rockets. Contains 211 photographs and diagrams. It tells you how to build everything from simple "beginner birds" to exact scale replicas of complex missiles. Most important, Mr. Stine, former Flight Safety Engineer at White Sands Missile Range tells how to do all this ----- and SAFELY!

*Deluxe Cloth Bound Edition*



### WC-4 EDUCATIONAL WALL POSTERS

*Set of four wall posters*

**\$3.00**

These new colorful wall charts are great for the school room, the club room and your room. Each of the four posters deals with a specific aspect of rocketry; components of a model rocket, how a model rocket works, how a model rocket engine works, safety code for model rocketeers. Each poster measures 14 1/2" x 20" and is printed in two colors on quality varnished card stock. If you're serious about rocketry, you should have these!

*Shipping Wt. 10 oz.*



### AMERICAN ROCKETEER NEWSLETTER

The AMERICAN ROCKETEER is published periodically by Centuri for its customers and friends to further acquaint them with the hobby of Model Rocketry and the products and services Centuri offers. It is sent, free of charge, upon publication, to all active Centuri customers. You will continue to receive new issues of the AMERICAN ROCKETEER as long as you are a Centuri customer. Just one more reason for buying the best — Centuri! Back issues available 25¢ each

*PRINTED EXCLUSIVELY FOR OUR CUSTOMERS*



# LARGE-SCALE ROCKETS FOR ADVANCED ROCKETEERS

"Large-Scale" Model Rockets are all those rockets, whether from a kit or built-up from custom parts, which are powered by either the ENERJET or MINI-MAX Model Rocket Engines shown on pages 88-91. Because these engines contain greater quantities of propellant and have special interior grain designs, they produce greater thrust with correspondingly higher vehicle acceleration. All these factors put MINI-MAX/ENERJET powered rockets in the "advanced" class. We therefore recommend that you first build and launch several rockets using the '1/2A' thru 'C' type engines (pp. 46-49) to become familiar with basic model rocket fundamentals and operating techniques before attempting to launch MINI-MAX or ENERJET powered "birds".

## CUSTOM PARTS SELECTION

Many parts shown in the following pages appear to be similar to those shown on pages 54-67 of this catalog, however, they are designed exclusively for use only in MINI-MAX/ENERJET powered rockets.

Four basic parts Series are available now; these Series numbers based on the body tube diameters are as follows:

Series # 115	1.15" Body Tube Diameter
Series # 125	1.25" Body Tube Diameter
Series # 175	1.75" Body Tube Diameter
Series # 225	2.25" Body Tube Diameter

All mating parts will have the same SERIES number. For example, any #175 series BODY TUBE will fit any #175 series NOSE CONE, #175 ENGINE MOUNT, #175 PAYLOAD CAPSULE, #175 COUPLER, etc. By using BALSA REDUCERS, many different parts combinations can be joined together for unusual designs.

Since the MINI-MAX and the ENERJET rocket engines are the same diameter, they may be used interchangably with the large-scale rockets.

## SPECIAL ORDERING INFORMATION

Before ordering any of the rocket kits, MINI-MAX or ENERJET engines in the following pages, be sure to first read the "Special Ordering Instructions" on pages 89 and 91 of this catalog.



EVERYTHING YOU NEED  
FOR LARGE ROCKET FLYING  
AT A SPECIAL LOW PRICE

**Centuri**  
LARGE SCALE ROCKETRY

# AERO DART SPECIAL

Parts Total \$42.40

LARGE  
PAYLOAD  
CAPSULE

COMPLETE  
IGNITION  
AND  
LAUNCHING  
OUTFIT  
INCLUDED

INCLUDES ADAPTER  
TO FIT ENERJET 'F'  
ENGINES

Popular AERO-DART Rocket Kit  
plus

### 3 Powerful MINI-MAX Rocket Engines

Enjoy the thrill of a spectacular MINI-MAX "lift-off", and educational benefits of conducting payload experiments. Excellent for club and school demonstrations and school Science Projects.

Includes the popular AERO-DART Kit, (page 85), a Heavy-Duty Launcher, (page 87), the Professional Firing Panel EP-612 (page 52), plus 3 'F' type MINI-MAX Engines.

SPECIAL PRICE

**\$34.50**

Cat. No. SK-501  
Shipping Wt. 6 lbs.

Shipped Express  
Charges Collect

INCLUDES ROCKET KIT •

PARACHUTE • LAUNCHER • FIRING PANEL • 3 ENGINES

**FLY THESE**

**"EXPLORER"**

**"JAGUAR"**

**"SCORPION"**

*Centaur*



*Engines not included. Shipped Parcel Post Prepaid.*

## LARGE SCALE MINI-MAX & ENERJET BIRDS!

# Jaguar Centuri SPORT FLYING ROCKET

**\$495**

Highest altitude possible with MINI-MAX and ENERJET 'E' type engines. Smallest possible body diameter. Excellent "Large-Scale" beginner rocket. Easy to assemble. Attains very high altitudes. Recovery by large streamer. Launch it many times.

### HIGH ALTITUDE WITH 'E' ENGINES STREAMER RECOVERY

ENGINES NOT INCLUDED

#### KIT INCLUDES:

*Body Tube  
Nose Cone  
Engine Mount  
ENERJET Adapter  
Recovery Harness  
Pre-Marked Fins  
Fin Reinforcing  
Streamer  
Decal*

Catalog No. KF-4A

#### SPECIFICATIONS

Body Dia. ----- 1.22"  
Length ----- 23"  
Net Wt. ----- 2.5 oz

#### RECOMMENDED ENGINES

MINI-MAX E15-6  
MINI-MAX E62-7  
ENERJET E24-7

# Scorpion Centuri SOUNDING ROCKET

**\$695**

Terrific kit for starting into "Large-Scale" model rocketry. Designed for use with MINI-MAX and ENERJET 'E' type engines. The SCORPION lifts slowly from the launch pad then streaks out of sight to return safely by chrome mylar parachute — ready to be flown again.

### HIGH ALTITUDE FLIGHTS PERFORMANCE ENGINEERED 18" PARACHUTE RECOVERY LAUNCH MANY TIMES

ENGINES NOT INCLUDED

#### KIT INCLUDES:

*22" Body Tube  
Balsa Nose Cone  
Engine Mount  
ENERJET Adapter  
Pre-Marked Fins  
Fin Reinforcing  
Recovery Harness  
Chrome-Mylar Chute  
Full Instructions*

Catalog No. KF-6A

#### SPECIFICATIONS

Body Dia. ----- 1.34"  
Length ----- 28"  
Net Wt. ----- 3.8 oz

#### RECOMMENDED ENGINES

MINI-MAX E15-4  
MINI-MAX E62-7  
ENERJET E24-7

# Explorer Centuri SOUNDING ROCKET

**\$895**

Extremely Versatile!! The EXPLORER can be powered by either MINI-MAX or ENERJET 'E' or 'F' type engines. EXPLORER attains extremely high altitudes with the ENERJET F67-9 engine. Recovery is by 18" silk parachute.

### HIGH ALTITUDE FLIGHTS 18" SILK PARACHUTE LAUNCH MANY TIMES

ENGINES NOT INCLUDED

#### KIT INCLUDES:

*20" Body Tube  
Engine Mount  
ENERJET Adapters  
Balsa Nose Cone  
18" Silk Parachute  
Balsa Fins  
Fin Reinforcing  
Shock Cord/Cable  
Decals  
Full Instructions*

Catalog No. KF-9A

#### SPECIFICATIONS

Body Dia. ----- 1.84"  
Length ----- 27"  
Net Wt. ----- 3.9 oz

#### RECOMMENDED ENGINES

MINI-MAX E15-4, 62-4  
ENERJET E24-4  
MINI-MAX F16-7, 97-7  
ENERJET F52-5, 67-9

CARRY UP TO 6 OZ. OF PAYLOAD!

**Centuri**  
LARGE SCALE ROCKETRY

# Lil' Hustler

## CARRIER ROCKET

A real Payload Carrier!! The "LIL' HUSTLER" is a  $\frac{3}{4}$  scale version of its big brother, the HUSTLER (on page 86). Designed for its higher altitude capability, the LIL' HUSTLER will carry up to 6 ounces of payload and return it safely via colorful SILRAY parachute. Comes with pre-installed engine mounts and recovery system. Simply attach fins and finish.

Kit includes 3 powerful MINI-MAX F type rocket engines with igniter packet and complete instructions.

# \$15.95

Catalog No. KF-8

Shipped Express Charges Collect  
Shipping Weight 5 lbs.

Available without engines - \$10.50

Shipped Parcel Post Prepaid.  
Order #KF-8a



HIGH ALTITUDE FLIGHTS  
BIG PAYLOAD CAPSULE  
COMPLETELY RECOVERABLE  
GREAT FOR SCIENCE EXHIBITS



*complete with*

*3 powerful*

*"MINI-MAX"*

*engines*

### KIT INCLUDES:

- Body Tube
- Capsule Tube
- Nose Cone
- Engine Mounts
- Balsa Reducer
- Die-Marked Fins
- Fin Reinforcing
- Launch Lugs
- 18" Silk Parachute
- Chute Secure Harness
- Trimming Decals
- 3 F M.M. Engines
- Igniter Packet
- Complete Instructions
- Enerjet Engine Adapter

### SPECIFICATIONS

- Body Diameter - - - 1.33"
- Capsule Diameter - 1.83"
- Overall Length - - - 29"
- Net Weight - - - 6.5 oz.  
(without engines)

### RECOMMENDED ENGINES

- MINI MAX F 97-7
- ENERJET F52-5
- ENERJET F67-9

TRY THIS HIGH ALTITUDE BIRD!

**Centuri**  
LARGE SCALE ROCKETRY

# Aero-Dart

PAYLOAD CARRIER ROCKET

Centuri's highest altitude, high performance single-stage Payload Rocket. Large (1.75" x 6") payload compartment provides plenty of space for live biological specimens or instrumentation. Positive parachute recovery system with "safety secure cable" brings the AERO-DART and its payload safely back to Earth. Launch it many, many times. Simply install new engine for each flight. Engine mounts and recovery harness are pre-installed at factory, fins are pre-marked.

*complete with*  
**3 powerful**  
**"MINI-MAX"**  
**engines**

**\$1595**

Catalog No. KF-12  
Shipped Express  
Charges Collect  
Shipping Wt. 5 lbs.

Available  
without engines  
\$10.50  
Shipped Parcel  
Post Prepaid  
Order #KF-12a

**HIGHEST ALTITUDE FLIGHTS**  
**CARRY UP TO 5 OZ. PAYLOADS**  
**SILK PARACHUTE RECOVERY**  
**CONDUCT PAYLOAD EXPERIMENTS**  
**PRE-INSTALLED BODY PARTS**



#### SPECIFICATIONS

Overall Length ----- 37.0"  
Body Diameter ----- 1.75"  
Net Weight ----- 6.0 oz.  
(without engines)

#### RECOMMENDED ENGINES

MINI MAX F 97-7  
ENERJET F52-5  
ENERJET F67-9

#### KIT INCLUDES:

22" Main Body Tube  
6" Capsule Tube  
Balsa Nose Cone  
Engine Mounts  
Pre-Marked Fins  
Capsule Coupler  
Shock/Secure Cable  
18" Silk Parachute  
Fin Reinforcing  
2 Launch Lugs  
Screw Eye  
Complete Instructions  
3 F Type Engines  
Enerjet Adapter



# the "HUSTLER"

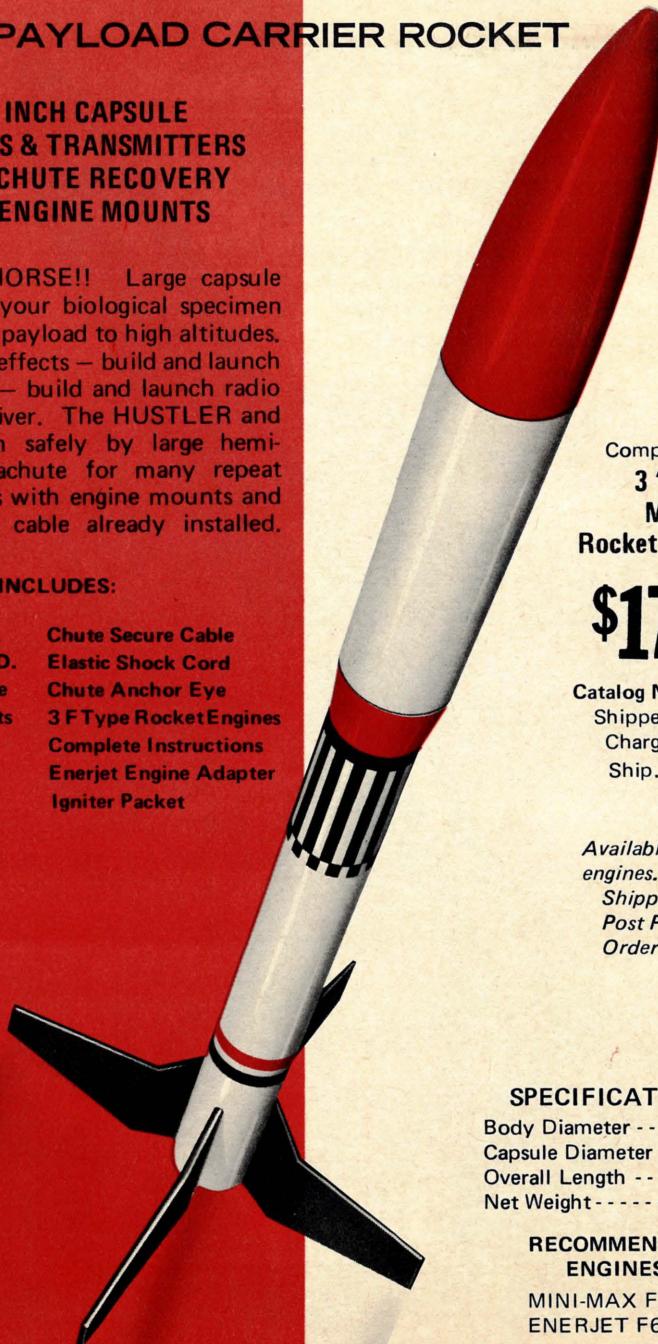
## PAYLOAD CARRIER ROCKET

**LARGE 27 CUBIC INCH CAPSULE  
CARRY CAMERAS & TRANSMITTERS  
RELIABLE PARACHUTE RECOVERY  
PRE-INSTALLED ENGINE MOUNTS**

**A REAL WORKHORSE!!** Large capsule designed to carry your biological specimen or instrumentation payload to high altitudes. Study acceleration effects — build and launch miniature cameras — build and launch radio transmitter or receiver. The HUSTLER and its payload return safely by large hemispherical silk parachute for many repeat launchings. Comes with engine mounts and shock cord/secure cable already installed.

### KIT INCLUDES:

Body Tube 1.75" I.D.	Chute Secure Cable
Capsule Tube 2.25" I.D.	Elastic Shock Cord
Large Balsa Nose Cone	Chute Anchor Eye
EM-175 Engine Mounts	3 'F' Type Rocket Engines
Pre-Marked Fins	Complete Instructions
Balsa Reducer	Enerjet Engine Adapter
Reinforcing Material	Igniter Packet
24" Silk Parachute	



**OVER  
3 FT.  
TALL**

Complete With  
3 'F' Type  
Mini-Max  
Rocket Engines

**\$1795**

**Catalog No. KF-10**  
Shipped Express  
Charges Collect  
Ship. Wt. 5 lbs.

*Available without  
engines. \$11.50  
Shipped Parcel  
Post Prepaid  
Order #KF-10A*

### SPECIFICATIONS

Body Diameter ----- 1.84"  
Capsule Diameter -- 2.34"  
Overall Length ----- 37"  
Net Weight ----- 8.2 oz.

### RECOMMENDED ENGINES

MINI-MAX F97-4  
ENERJET F67-6



**HEAVY DUTY**

# LAUNCHER

FOR "MINI-MAX" & ENERJET POWERED ROCKETS

Designed to launch the "big ones" powered by MINI-MAX and ENERJET engines. Low center-of-gravity and wide tripod leg design prevents wobble or tipping of stand. Launcher includes:

**LAUNCHER BASE** Self balancing design permits launching from any terrain. Collapsible legs for ease of transportation. Base assembly is made up of three tripod legs, triangular base plate, and hardware set.

**IGNITER - DEFLECTOR** Combination exhaust deflector and mount for electrical ignition clips. Steel deflector directs exhaust gases away from the base of rocket. Includes set of micro-clips with ignition leads which spring back out of exhaust after ignition.

**LAUNCHING ROD** Straight, tempered steel rod. Measures 3/16" diameter x 36" long.

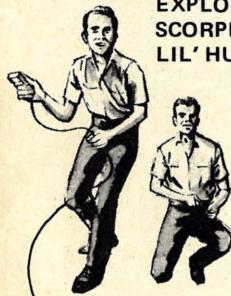
# \$500

Catalog No. LIA-100  
Shipping Weight 4 lbs.

*Launches All The Following Centuri Models:*

JAGUAR  
EXPLORER  
SCORPION  
LIL' HUSTLER

AERO-DART  
HUSTLER  
SATURN V  
SATURN 1-B



STURDY TRIPOD PLATFORM  
STEEL EXHAUST DEFLECTOR  
IGNITER HOOK-UP CLIPS  
TEMPERED STEEL LAUNCH ROD



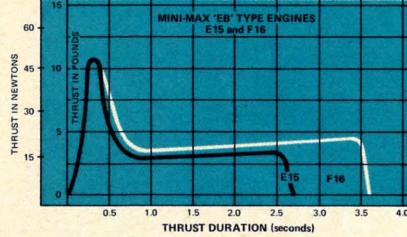
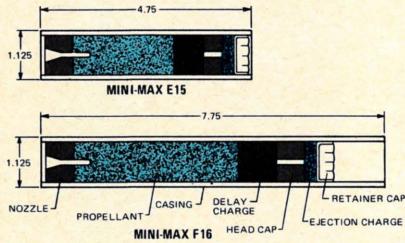
*"ROCKET"  
shown  
not included*

Centuri

# MINI-MAX ENGINES

**RECOMMENDED FOR THE LARGER MODEL**

\*Lift-Off Weight (Rocket + Payload + Engine)



These larger, advanced MINI-MAX model rocket engines provide the high thrust levels needed to lift the Large-Scale Model Rockets, either kits or custom-built from parts, as shown on pages 81 through 95. These engines are capable of propelling a well designed model rocket to an altitude of 3000 feet and ejecting its parachute at the peak of flight.

## MINI-MAX "EB" ROCKET ENGINE DESIGN

The 'EB' ("End Burning") MINI-MAX Rocket Engine, excellent for rockets weighing 6 to 10 ounces, has a modified end-burning solid propellant grain. As shown in the diagram to the left, these engines, upon ignition, produce a short duration, high-level thrust which imparts the necessary stabilizing velocity to your model. The thrust then drops to a constant sustaining level until burnout. At the instant of burnout, a slow burning delay charge is ignited which allows the model to coast on up to peak altitude before the "ejection" charge is ignited. This charge provides a sudden release of gases which activate the recovery system and "pushes out" the parachute.

## MINI-MAX ROCKET ENGINE SPECIFICATIONS

Cat. No. and New Metric Code	PRICES	Total Impulse Lb-sec	Total Impulse N-sec*	Average Thrust Pounds	Average Thrust Newtons	Thrust Duration	Maximum Thrust Pounds	Maximum Thrust Newtons
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### MINI-MAX 'E' TYPE SINGLE STAGE ENGINES

E15-4	\$1.75 ea	8.9	39.6	3.3	14.7	2.70 sec	10.5	46.7
E15-6	3/\$5.00	8.9	39.6	3.3	14.7	2.70 sec	10.5	46.7
E15-8		8.9	39.6	3.3	14.7	2.70 sec	10.5	46.7
E62-4	\$2.00 ea	7.3	32.5	13.8	61.4	0.53 sec	26.2	116.6
E62-7	3/\$5.75	7.3	32.5	13.8	61.4	0.53 sec	26.2	116.6

### MINI-MAX 'E' TYPE BOOSTER ENGINE

E62-0	\$2.00 ea 3/\$5.75	7.3	32.5	13.8	61.4	0.53 sec	26.2	116.6
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### MINI-MAX 'F' TYPE SINGLE STAGE ENGINES

F16-4	\$3.00 ea	13.0	57.8	3.6	16.0	3.61 sec	10.5	46.7
F16-7	3/\$8.75	13.0	57.8	3.6	16.0	3.61 sec	10.5	46.7
F97-4	\$3.00 ea	12.0	53.4	21.8	97.0	0.55 sec	39.0	173.5
F97-7	3/\$8.75	12.0	53.4	21.8	97.0	0.55 sec	39.0	173.5
F97-10		12.0	53.4	21.8	97.0	0.55 sec	39.0	173.5

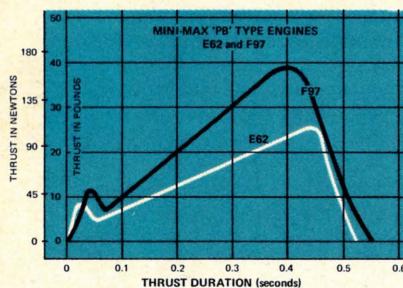
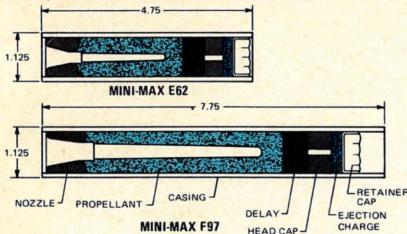
### MINI-MAX 'F' TYPE BOOSTER ENGINE \*Newton-seconds (A "Newton" is the Metric

F97-0	\$3.00 ea 3/\$8.75	12.0	53.4	21.8	97.0	0.55 sec	39.0	173.5
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# FOR LARGE-SCALE ROCKETS

## ROCKETS WEIGHING 6 TO 16 OUNCES\*

MINI-MAX 'PB' engines provide the high thrust levels needed to lift heavy payloads, such as transmitters or cameras. Both types of MINI-MAX engines have strong fibre cases, high energy propellant, accurate time delays, and ceramic exhaust nozzles. Recent improvements now give all MINI-MAX engines unparalleled performance and reliability.



### ORDERING MINI-MAX ENGINES

MINI-MAX engines are recommended for the advanced rocketeer who has built and launched several of the smaller rockets. Please order these engines on the special "MINI-MAX/ENERJET" Order Blank only, as it contains more ordering information. Orders containing MINI-MAX engines must be shipped via Railway or Bus Express, freight charges collect.

### MINI-MAX "PB" ROCKET ENGINE DESIGN

The 'PB' ("Port Burning") series MINI-MAX engine has a "port" or "center-burning" solid propellant grain. As shown in the diagram to the left, these engines, upon ignition, produce an instantaneous high-level thrust which increases gradually to "peak" thrust; dropping off to zero at burnout. The built-in coast-time delay charge allows the rocket to "coast" on up to peak altitude before "pushing out" the rocket's parachute (via the ejection charge). The high thrust level of the 'PB' design makes it the ideal engine for lifting payloads. Specifically designed booster engines (E62-0 and F97-0) are available for multi-staging.

### AND PRICE LIST

Initial Weight Ounces • Grams	Propellant Wt. Ounces • Grams	Delay Time ( $\pm 15\%$ )	Recom. Max. Lift-Off Wt. (with engines)
3.5 99.2	1.7 48.2	4 sec.	10 oz
3.6 102.1	1.7 48.2	6 sec	8 oz
3.7 104.9	1.7 48.2	8 sec	6 oz
3.5 99.2	1.4 39.7	4 sec	12 oz
3.6 102.1	1.4 39.7	7 sec	10 oz
3.4 96.4	1.4 39.7	NONE	14 oz
4.7 133.2	2.2 62.4	4 sec	11 oz
4.8 136.1	2.2 62.4	7 sec	8 oz
5.2 147.4	2.2 62.4	4 sec	16 oz
5.4 153.1	2.2 62.4	7 sec	14 oz
5.6 158.8	2.2 62.4	10 sec	12 oz
<i>unit of force. 1 pound of force = 4.45 Newtons of force.)</i>			
5.0 141.8	2.2 62.4	NONE	16 oz

PRICE OF ENGINES  
INCLUDES COMPLETE  
MOUNTING, IGNITION  
& LAUNCHING  
INSTRUCTIONS.

Plus Special  
ELECTRICAL IGNITER KIT



**NOW!** You can launch your Model Rockets with the most powerful engines ever built!

*The amazing!*

**ENERJET** \*

**COMPETITION CONTEST WINNING  
ROCKET ENGINES**

A NEW DIMENSION IN MODEL ROCKETRY

Perhaps the most significant breakthrough in Model Rocketry in the past ten years. For years, model rocket propellant has been technically limited to a specific impulse of 80-90 sec. (comparable to gas octane rating). Now **ENERJET** offers you a specially developed composite propellant with a specific impulse of 185 to 200! In other words, **ENERJET** propellant delivers nearly 2½ times more power per ounce of fuel.

To the serious rocketeer, this means many things - - - - Lifting scale birds with a single engine, eliminating clusters - Super powerful contest birds with smaller and lighter weight engines. (An **ENERJET F67** can propel a model rocket to nearly 10,000

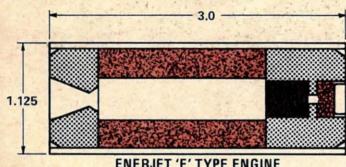
feet.) It means an E class engine that will fit nicely into Centuri's Saturns, Little Joes, Centurions, etc. Since the diameter of an **ENERJET** is the same as that of a **MINI-MAX**, inexpensive adapters enable you to change engine types to match your desires.

**ENERJETS** are truly professional rocket engines scaled down to model rocket size. The heart of these engines is the specially developed high energy composite propellant which uses a plastic type binder. This propellant is case bonded to a glass filament wound, epoxy impregnated casing. The machined graphite expansion nozzle and delay charge housing are epoxy bonded to the engine casing.

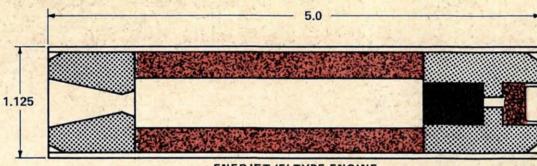
**ENERJET ROCKET ENGINE SPECIFICATIONS**

Catalog No. & NAR Code	Price	Total Impulse Lb. - sec	Total Impulse N-sec	Average Thrust Pounds	Average Thrust Newtons	Thrust Duration	Maximum Thrust Pounds	Maximum Thrust Newtons
E24-4	\$3.50 ea	8.96	40	5.4	24	1.6 sec	7.6	33.8
E24-7	\$3.50 ea	8.96	40	5.4	24	1.6 sec	7.6	33.8
E24-10	\$3.50 ea	8.96	40	5.4	24	1.6 sec	7.6	33.8
F52-5	\$4.50 ea	10.4	46	11.7	52	0.9 sec	16.0	71.3
F52-8	\$4.50 ea	10.4	46	11.7	52	0.9 sec	16.0	71.3
F52-12	\$4.50 ea	10.4	46	11.7	52	0.9 sec	16.0	71.3
F67-6	\$5.00 ea	17.9	80	15.1	67	1.2 sec	21.6	96.1
F67-9	\$5.00 ea	17.9	80	15.1	67	1.2 sec	21.6	96.1
F67-14	\$5.00 ea	17.9	80	15.1	67	1.2 sec	21.6	96.1

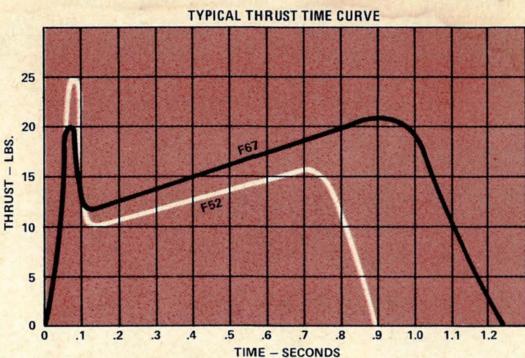
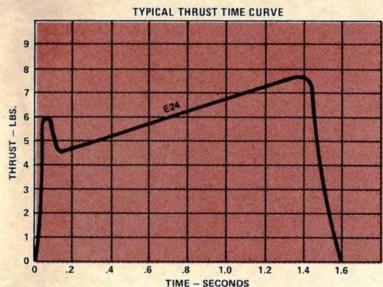
## ENERJET BREAKS THE IMPULSE BARRIER!



ENERJET 'E' TYPE ENGINE



ENERJET 'F' TYPE ENGINE



All *ENERJET* engines are "port burners" (PB type). As shown in the diagrams, these engines generate a high level of thrust immediately upon ignition. The initial thrust drops slightly and then starts to build again until burnout. This high average thrust makes the *ENERJETS* ideal for lifting large payloads.

*ENERJET* engines are recommended only for the advanced rocketeer. Please order these engines on the *MINI-MAX/ENERJET* order form. Orders containing only *ENERJET E24* engines will be shipped parcel post prepaid. Any order containing *ENERJET 'F'* type engines must be shipped via REA Express, freight charges collect.

\* A SUBSIDIARY OF CENTURI ENGINEERING CO.



*enerjet*  
*F-67*  
*equals*  
*16*  
*B engines*

POWER PLUS!  
ENERJET  
REALLY PACKS  
A WALLOP!

Initial Weight Ounces	Propellant Wt. Grams	Delay Time	Engine Dimensions	Recom Max Lift-off Wt. (with engine)		
2.5	74	.048	21.8	4 sec	1.125" dia. (28.6 mm) 3.0" long (76.2 mm)	11 oz
2.5	74	.048	21.8	7 sec	3.0" dia. (76.2 mm) 5.0" long (127 mm)	9 oz
2.5	74	.048	21.8	10 sec	3.0" dia. (76.2 mm) 5.0" long (127 mm)	7 oz
3.4	93	.054	24.9	5 sec	1.125" dia. (28.6 mm) 5.0" long (127 mm)	14 oz
3.4	93	.054	24.9	8 sec	5.0" dia. (127 mm) 5.0" long (127 mm)	11 oz
3.4	93	.054	24.9	12 sec	5.0" dia. (127 mm) 5.0" long (127 mm)	8 oz
4.0	112	.095	43.0	6 sec	1.125" dia. (28.6 mm) 5.0" long (127 mm)	16 oz
4.0	112	.095	43.0	9 sec	5.0" dia. (127 mm) 5.0" long (127 mm)	13 oz
4.0	112	.095	43.0	14 sec	5.0" dia. (127 mm) 5.0" long (127 mm)	9 oz



# CUSTOM PARTS FOR

## BODY & BOOSTER TUBES • NOSE



### FLAMEPROOFING SOLUTION

Simply brush on like paint. Prevents burning of tail fins, engine mounts and parts exposed to exhaust gases. Apply full strength. Recommended for all large model rockets. Can be applied either over or under paint. Ship Wt. 5 oz.

2 oz. bottle  
FP-13 50¢

### LARGE SCREW EYES

Heavy duty screw eyes for use in large balsa nose cones and payload capsules. Bright-plated steel with coarse thread. Net. wt. 0.1 oz. Ship wt. 1 oz.

SE-20

Pkg. of 3 for 20¢

### MYLAR LAUNCHING LUGS



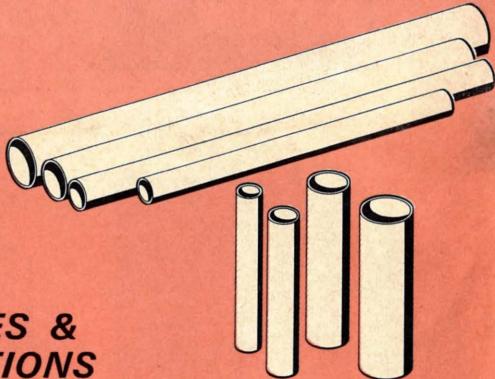
Fantastic lightweight lugs with super strength and hi-gloss finish. Micro-thin construction. Attach to rocket body with glue. Used to guide rocket along a 3/16" rod. 0.200" I.D. Ship wt. 1 ounce.

LL-12 2" long 3/20¢

LL-13 3" long 3/25¢

### BODY TUBES

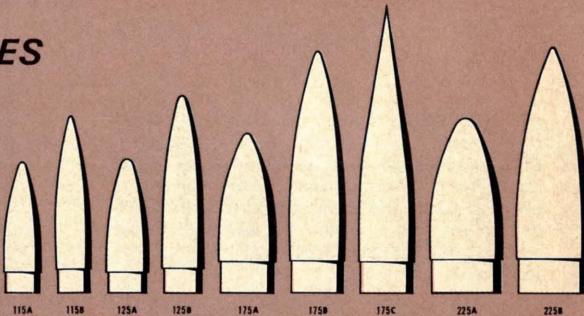
Entirely New!! Strong, light-weight tubes, specially engineered for MINI-MAX powered rockets - - - able to take high acceleration. Heat welded, hard fiber material with glossy outer wrap - - - paints well.



### BOOSTER TUBES & PAYLOAD SECTIONS

### NOSE CONES

Precision machined, ultra-lightweight balsa wood cones. Smooth sanded finish. Reduced section at bottom end slip-fits into top of body tube. Engineered for maximum altitude performance



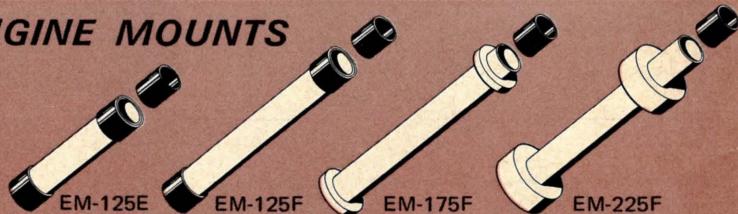
### THRUST RINGS

Acts as forward engine stop when glued into 115 series tube.



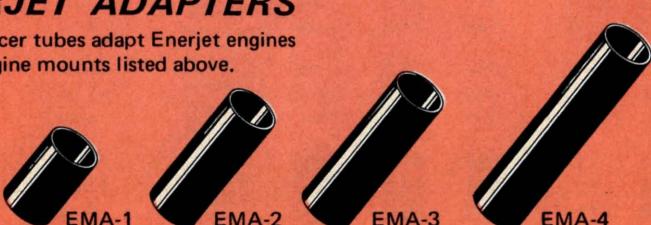
TR-115

### ENGINE MOUNTS



### ENERJET ADAPTERS

These spacer tubes adapt Enerjet engines to the engine mounts listed above.



# LARGE-SCALE MODEL ROCKETS

## CONES • ENGINE MOUNTS • ENERJET ADAPTERS

Cat. No.	I.D.	O.D.	Length	Net Wt.	Ship Wt.	Price
LT-115A	1.14"	1.22"	16"	1.1 oz	1 lb	.75
LT-115B	1.14"	1.22"	22"	1.5 oz	2 lb	.95
LT-125A	1.25"	1.34"	22"	1.6 oz	1 lb	1.20
LT-125B	1.25"	1.34"	30"	2.2 oz	2 lb	1.45
LT-175A	1.75"	1.84"	22"	2.1 oz	1 lb	1.35
LT-175B	1.75"	1.84"	30"	3.2 oz	2 lb	1.75
LT-225A	2.25"	2.34"	22"	3.0 oz	1 lb	1.45
LT-225B	2.25"	2.34"	30"	4.0 oz	2 lb	1.95

### BOOSTER TUBES AND PAYLOAD SECTIONS

LBT-115	1.14"	1.22"	8"	0.4 oz	6 oz	.45
LBT-125	1.25"	1.34"	8"	0.6 oz	8 oz	.50
LBT-175	1.75"	1.84"	8"	0.9 oz	10 oz	.55
LBT-225	2.25"	2.34"	8"	1.1 oz	12 oz	.65

Cat. No.	Fits Tube Series	Overall Length	Net Wt.	Ship Wt.	Price
BC-115A	#115	3.5"	0.3 oz	4 oz	.75
BC-115B	#115	4.9"	0.5 oz	5 oz	.95
BC-125A	#125	3.6"	0.4 oz	4 oz	.85
BC-125B	#125	5.5"	0.7 oz	6 oz	1.00
BC-175A	#175	4.1"	0.9 oz	6 oz	1.35
BC-175B	#175	6.7"	1.1 oz	12 oz	1.75
BC-175C	#175	8.2"	1.4 oz	10 oz	1.95
BC-225A	#225	4.5"	1.1 oz	10 oz	1.95
BC-225B	#225	6.7"	1.5 oz	14 oz	2.50

Cat. No.	Fits Engine	Fits Tube Series	Net Wt.	Ship Wt.	Price
TR-115	ALL MINI-MAX & ENERJET	115	0.07 oz	2 oz	.15

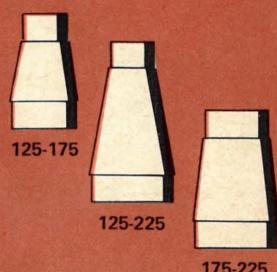
Cat. No.	Fits Engine*	Fits Tube Series	Net Wt.	Ship Wt.	Price
EM-125 E	MINI-MAX E	125	0.4 oz	4 oz	.60
EM-125 F	MINI-MAX F	125	0.5 oz	4 oz	.70
EM-175 F	MINI-MAX F	175	0.8 oz	7 oz	.80
EM-225 F	MINI-MAX F	225	0.7 oz	6 oz	1.00

\*See engine mount adapters below

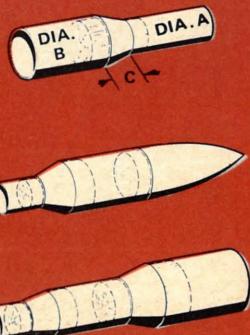
Cat. No.	Adapts	Net Wt.	Ship Wt.	Price
EMA-1	ENERJET E engine to EM-125E mount	0.1 oz	2 oz	.25
EMA-2	ENERJET F engine to EM-125F, EM-175F & EM-225F mounts	0.25 oz	3 oz	.25
EMA-3	MINI-MAX E engine to EM-125F, EM-175F & EM-225F mounts	0.15 oz	2 oz	.25
EMA-4	ENERJET E engine to EM-125F, EM-175F & EM-225F mounts	0.3 oz	3 oz	.30

## BALSA REDUCERS

Precision machined light-weight balsa wood adapters for connecting body tubes of different diameters. Useful for adapting payload capsules to various sizes of body tubes. Ends of fittings slip snuggly into body tube ends.



Cat. No.	BR-125-175	BR-125-225	BR-125-225
Adapts Tubes A to B	# 125 to # 175	# 125 to # 225	# 175 to # 225
Length	2.1"	2.8"	2.1"
Net Wt.	0.5 oz	0.6 oz	0.8 oz
Ship Wt.	4.0 oz	6.0 oz	8.0 oz
Price	\$1.00	\$1.45	\$1.35





# CUSTOM PARTS FOR

**TUBING & BALSA COUPLERS • FIN MATERIAL •**



225



175



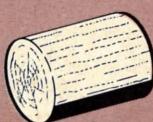
125

## TUBING COUPLERS

Join sections of body tube together with these rigid fiber rings which telescope fit into body tubes. Perfect for payload section couplings, break-away sections, and multi-stage.



225



175



125



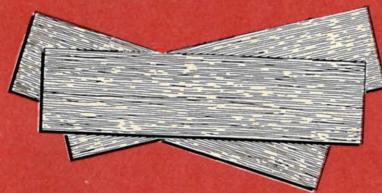
115

## BALSA COUPLERS

Couples sections of tubing of same diameter. Round solid balsa stock fits snuggly into body tubes. Especially useful for payload sections.

## FIN MATERIAL

Select grain smooth sanded balsa sheet stock. Perfect fin material for MINI-MAX powered rockets. Shipping wt. 12 ounces each.



CAT.NO.	THICKNESS	WIDTH	LENGTH	PRICE
BFM-15	1/8"	4"	18"	45¢
BFM-16	3/16"	4"	18"	55¢
BFM-18	1/4"	4"	18"	65¢



## SILK PARACHUTES

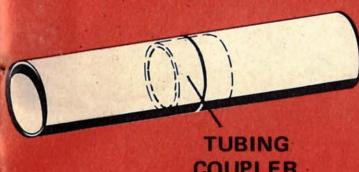
*Professional  
Hemispherical  
Design*

Professionally designed hemispherical chutes for sure-safe recovery of large-scale model rockets. Parabolic panels of alternating high-visibility colors are easy to spot at high altitudes. Durable SILRAY canopy has "spill hole" sewn into center. Strong nylon shroud lines firmly anchored into the canopy.

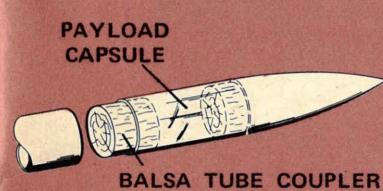
CAT. NO.	DIA.	COLOR PATTERN	RECOM. ROCKET	MAX. NET. WT.	SHIP. WT.	PRICE
PS-12	12"	Red & White	6oz.	0.7oz.	4oz.	\$1.90
PS-18	18"	Red & White	8oz.	0.9oz.	4oz.	\$2.75
PS-24	24"	Red, White & Black	10oz.	1.3oz.	4oz.	\$3.50
PS-30	30"	Red, White & Black	14oz.	2.8oz.	6oz.	\$4.50
PS-40	40"	Red, White & Black	24oz.	3.3oz.	8oz.	\$7.50

# LARGE-SCALE ROCKETS

**SILK PARACHUTES • MYLAR • SHOCK CORDS**



Cat. No.	Fits Tube Series	Length	Net Wt.	Ship Wt.	Price
HTC-125	#125	1.75"	.085 oz	3 oz	\$.25 ea
HTC-175	#175	2.0"	.150 oz	4 oz	.30 ea
HTC-225	#225	2.25"	.190 oz	5 oz	.35 ea



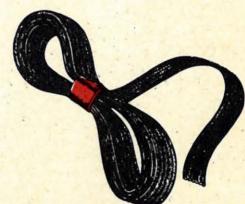
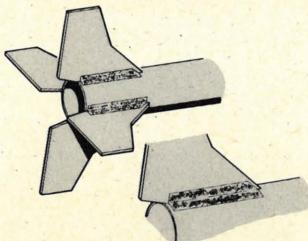
Cat. No.	Fits Tube Series	Length	Net Wt.	Ship Wt.	Price
BTC-115	#115	1.7"	0.2 oz	2 oz	\$.40 ea
BTC-125	#125	2.0"	0.2 oz	2 oz	.45 ea
BTC-175	#175	2.2"	0.4 oz	3 oz	.65 ea
BTC-225	#225	2.5"	0.6 oz	4 oz	.85 ea

## FIN CUTOUTS



Actual fin outlines printed right on the top grade balsa sheets. Excellent fin shapes for most model rockets using #115 thru #225 Series Body Tubes. Sheet size 3/16" x 4" x 18". Ship. Wt. 12 oz. ea.

BFC-9	1 sheet — 4 medium fins	.65
BFC-13	2 sheets — 4 large & 4 medium fins	1.00



## CHROME MYLAR PARACHUTE MATERIAL

Square yard of hi visibility chrome mylar. (Only .0005 inch thick.) Complete instructions for making your own 4, 6, or 8 sided parachutes up to 36" across, plus "How to fold & pack chutes". Ship wt. 4 oz.

MCM-36      sq. yd.      95¢

## REINFORCING MATERIAL

Ultra-thin, lightweight strong SILRAY material for strengthening fin-to-body glue joints. Keeps fins from 'stripping off' on MINI-MAX powered rockets. Apply easily with white glue or clear dope. Big sheet 12" x 12". Ship Wt. 2 oz.

SR-12

30¢

## ELASTIC SHOCK CORD

The recommended shock cord for all large model rockets. Strong, fabric-elastic material 3/8" wide x 30" long. Absorbs shock of parachute being ejected from body tube. Install between nose cone and body tube. Ship Wt. 2 oz.

TC-36

30¢ ea.

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▲ Centuri rockets are easy and fun to assemble.

Off to a nearby field to launch.



### LIFT-OFF!!

What a thrill to see your own rocket lift off the pad and streak high into the sky.



▲ It's way up there --  
Nearly out of sight!!

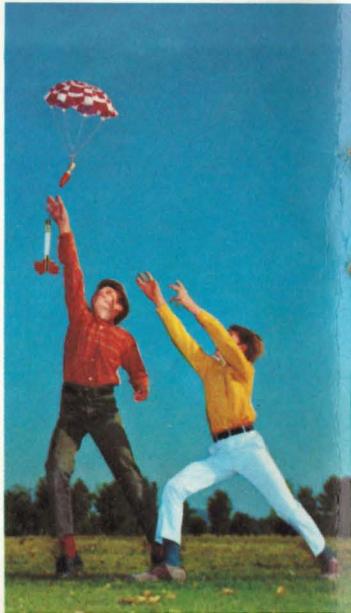


▲ Electrical launching system is fast & easy to hook up.



▲ Colorful parachute automatically ejects at peak altitude.

Rockets returns safely -- ready to launch again & again.





# Space Shuttle

The astounding new shuttle based on NASA proposed orbiting payload shuttle for future space flights.

*See inside back cover for  
complete details!*



## NOTICE OF PRICE INCREASE - CENTURI #711 AND #71D CATALOGS

Due to rising material costs, the following items have been increased in price to the amounts shown below.

<u>Catalog Page</u>	<u>Catalog No. &amp; Description</u>	<u>New Retail Price</u>
9	SK-100 Beginner's Outfit	\$10.95
10	SK-101 Rocketeer's Outfit	\$14.95
11	SK-102 Arsenal Outfit	\$21.95
50	LIA-65 Servo Launcher	\$ 6.95
51	LIA-50 Box Launcher	\$ 3.75
51	LIA-77 Tripod Launcher	\$ 4.95
52	EFC-1 Lectra Line 1	\$ 3.95
52	EFC-2 Lectra Line 2	\$ 4.95



Centuri

P.O. Box 1988 Phoenix, Arizona 85001

HI THERE!

We at Centuri are real proud and happy to offer you our new 1971 Model Rocketry Catalog together with this special announcement folder.

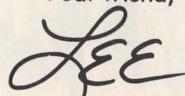
At Centuri you'll discover many advanced concepts in Model Rocketry — above all ENERJET! ENERJET ROCKET ENGINES crash through the old power ceilings and enable you to fly your rockets higher, truer and faster than any ROCKET ENGINES ever built! You'll discover new rocket kits designed to look and operate just like the SPACE SHUTTLE program currently being developed by NASA. You'll find Centuri's new SERVO LAUNCHER which uses only 3 volts of battery power to operate and employs a new pneumatic switch system. Also, you'll see greatest selection of Custom Designing Rocket Parts ever assembled — — — together with a FREE Design Manual.

We know you'll be eager to read about and join the CENTURI AEROSPACE TEAM and receive the many benefits that we are showing you here with lots more to come.

So settle back — read this folder and the CATALOG — cover to cover and see why CENTURI proudly lives up to its' motto —

"The Quality Leader in High Flying Rockets"

Your friend,



Leroy E. Piester, President



A SUBSIDIARY OF CENTURI ENGINEERING CO.

**NOW! YOU CAN ELIMINATE CLUSTERS OF LOW POWERED ENGINES WITH A SINGLE "D" ENGINE OF THE SAME DIAMETER!**

**The amazing!**

**ENERJET\***

# COMPETITION CONTEST WINNING ROCKET ENGINES

## A NEW DIMENSION IN MODEL ROCKETRY

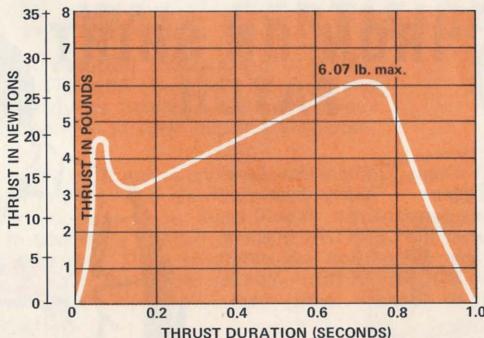
For years, model rocket propellant has been technically limited to a specific impulse of 80 to 90 sec. Now, however, ENERJET offers you a specially developed composite propellant with a specific impulse of 185 to 200. In other words, ENERJET propellant delivers nearly 2½ times more power per ounce of fuel.

What does the ENERJET concept mean to you, the contest minded rocketeer? It means lifting large scale birds with a single 'D' engine no larger in diameter than a standard 'A', 'B', or 'C' engine. Now you can eliminate clusters of lower powered engines — — — thus greatly improving your chances of a stable, straight-up flight. The ENERJET 'D' means "insurance" for a perfect flight and a "first place" in contest events. It means that you can now send those sport rockets higher than you ever dreamed of — — — without having to change engine mounts.

Centuri's ENERJET 'D' is truly a professional engine scaled down to model rocket size. The heart of this engine is the specially developed high energy composite propellant which uses a new space age plastic type binder.

The unique 'D' engine casing is formed of newly developed high strength, high temperature resistant, filament reinforced, plastic compound.

Even more amazing is the special engineered exhaust nozzle which withstands the tortuous temperatures and exhaust velocity of nearly 6,000 feet per second. A nozzle extension helps to fully form the exhaust plume and properly expand the exhaust gases for best operating efficiency.



**1 ENERJET "D" ENGINE  
EQUALS 4 "B" type engines**

## ENERJET 'D 21' ENGINE SPECIFICATIONS

Total Impulse	4.48 lb-sec	Specific Impulse	187 lb-sec per lb.
Average Thrust	4.7 lb.	Exhaust Velocity	5980 ft. per sec.
Thrust Duration	.95 sec.	Time Delays	4 sec, 7 sec, 10 sec
Maximum Thrust	6.07 lbs.	Overall Length	3.36"
Initial Weight	1.12 ounces	Diameter	0.695"
Propellant Weight	.024 pounds		

Catalog Numbers & NAR Code D21-4, D21-7, D21-10

**\$120 ea. 3 for \$295**

Includes special igniters.

Specifications subject to change.

**HERE'S WHY YOU SHOULD JOIN THE...**



# AEROSPACE TEAM

Every Model Rocketeer is enthusiastically interested in what is new and going on in the world of Model Rocketry. New Developments, New Designs and New Manufacturing Processes make Model Rocketry the fascinating hobby that it has become and is one of the main reasons why Model Rocketry is the fastest growing hobby in America today.

That's why CENTURI has developed the CENTURI AEROSPACE TEAM. Every CENTURI AEROSPACE TEAM MEMBER can participate, and will be kept informed of all the latest developments in Model Rocketry.

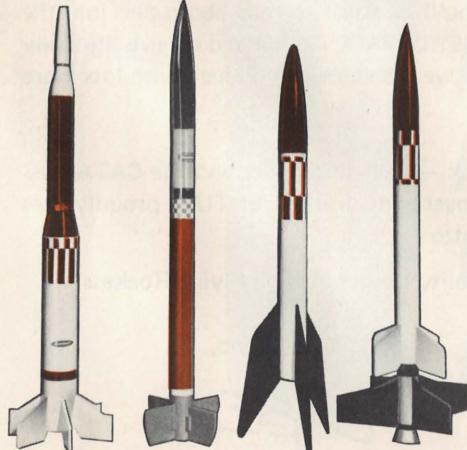
Through our American Rocketeer you will see and read of the latest model rocketry news. We welcome your letters, photos, design ideas, and comments and will publish and answer all those we can.

## HOW TO JOIN THE CENTURI AEROSPACE TEAM!

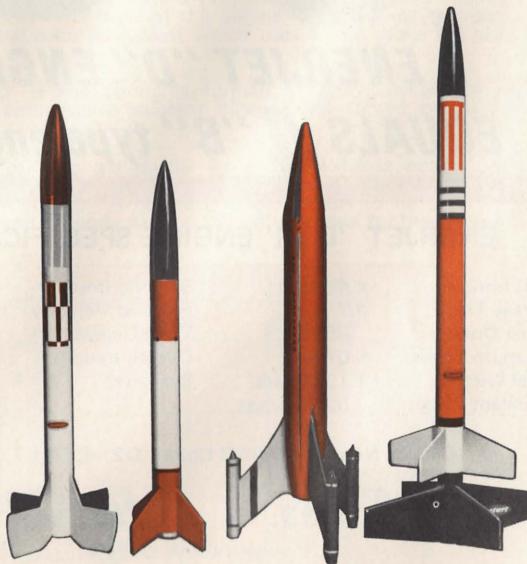
Simply send us your next order in the amount of \$5.00 or more. That's all it takes to join. Together with your order, you'll receive your complete membership packet — — — including valuable Bonus Certificates.

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In addition to this you will receive the following bonuses as CENTURI'S WELCOME to you as a proud member of the CENTURI AEROSPACE TEAM.



**BUILDING AND  
LAUNCHING MODEL  
ROCKETS IS BOTH  
FUN AND EDUCATIONAL**



1

## **BONUS CERTIFICATES**

With every order you send in we will send you valuable BONUS CERTIFICATES. These are worth actual \$ when used toward purchase of additional CENTURI merchandise — either at your favorite hobby dealer or back here at CENTURI. Use them as partial payment for new supplies and kits you want. They're just like getting a big discount.



4

# AMERICAN ROCKETEER

Published periodically by CENTURI, it contains articles, photos, design plans and news of what is new in Model Rocketry. You will receive FREE COPIES of the American Rocketeer as part of your CENTURI AEROSPACE TEAM Bonus and your continuing purchase of CENTURI Supplies.



2



# DESIGN MANUAL

Here's a 32 page Manual that contains everything you need and want to know about building and designing your own Model Rockets - from "design" to "launching".

It contains dozens of illustrations and PHOTOS and shows DESIGN TIPS, CONSTRUCTION TECHNIQUES, STABILITY, HOW TO LAUNCH and FLY your own ROCKET, RECOVERY SYSTEMS, MULTI-STAGING, FINISHING TIPS, BOOST-GLIDERS, ENGINE SAFETY and many other helpful suggestions which will enable you to completely enjoy the rewarding experience of CUSTOM ROCKET DESIGNING.

3

# IRON-ON SHIRT PATCH



A colorful Team Emblem for your T-shirt or shirt — easily irons on and remains permanently. You'll be proud to wear the CENTURI Insignia and get the recognition of other CENTURI ROCKETEERS. You'll be proud to identify with them.

5

# AEROSPACE TEAM MEMBERSHIP CARD

For your personal use, this wallet size, double card identifies you as a member of the CENTURI AERO-SPACE TEAM and also includes the 14 points of the MODEL ROCKET SAFETY CODE. Use it to identify yourself with other Model Rocketeers and to your local Hobby Dealer when making additional purchases.



6

## FIELD BOX I. D. STICKER

Colorfully designed FIELD BOX Personal identification label. It identifies you as a member of the CENTURI SPACE TEAM and has a place for your name and address. It can also be used on any of the CENTURI Outfits. Use it on school notebooks, brief cases, bicycles, etc.



# WALL CERTIFICATE

7

A beautiful lithographed CERTIFICATE with your name inscribed and ready for framing. Display it in your room or in your club meeting room.

Simply fill in the names and addresses of four friends (who are not already Centuri rocketeers) but who would like to become a Centuri Aerospace Team member. Then, send the form in with your first order and you'll receive the CERTIFICATE when your order arrives.